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ELECTRIC RAILWAY TRACTION

A Supplement illustrating and describing developments in Electric Railway Traction is presented with each copy of this week's issue.

More Trains than Tickets

SO popular have the cheap evening trips to Brighton become that the other day Victoria station ran out of the appropriate tickets. Despite that serious state of affairs, the Southern Railway authorities neither turned the applicants back nor sent the trains away empty. They merely issued emergency tickets and carried as many perspiring would-be bathers as they had coaches to accommodate. What an outcry there would have been otherwise! Suppose the trains had left for the seaside with half their seats unoccupied, and the ticketless had been herded off the station premises; would everyone have been satisfied with the explanation that there were not enough tickets? They would not, yet if people were logical they should have accepted the excuse and resignedly pursued their several ways, for that is precisely what is going on almost without comment all over the industrial world to-day, only on a different plane. Instead of a shortage of tickets entitling the holders to a specific service such as a railway journey, there is a universal scarcity of monetary tickets for the purchase of commodities generally, with the result that the goods nobody can buy have to be destroyed and the means of producing them sabotaged. We are glad the Southern Railway ran out of tickets to Brighton, and found a more reasonable remedy than smashing its carriages, for it has enabled us once again to point a vital moral.

Railway Air Mails

It was a happy coincidence that it was on the 25th anniversary of Blériot's famous cross-Channel flight of July 25, 1909, that the Postmaster-General should announce to the public his intention of developing extensive internal air mail services within Great Britain. The announcement, which is one of the greatest importance to the railways, has frequently been foreshadowed in THE RAILWAY GAZETTE. The new arrangement, which entails the granting of regular mail-carrying contracts to Railway Air Services Limited between London, Birmingham, Manchester, Belfast, Glasgow, Liverpool, Cardiff, Plymouth, Southampton, and the Isle of Man, is due to come into operation with the commencement some time early next month of the new service between London, Belfast, and Glasgow. The postage rate will be the standard 1½d. for letters not exceeding 2 oz., and letters, which may be posted in any pillar box, will be required to bear either the special blue air mail label or the words "by air mail." The new services will mean an appreciable saving of time in some instances. For example, a letter posted at Belfast at 8.45 a.m. should be delivered in the City of London at about 4 p.m., or in Southampton at about 4.30 p.m. To ensure that the Post Office is kept in the closest touch with air developments the Postmaster-General has arranged, after consultation with the Secretary of State for Air, to appoint an air mail adviser. It is also proposed to appoint one or two extra members to the Post Office Advisory Council, and with their assistance to form a small air mail panel which he can consult from time to time.

* * * *

The Week's Traffics

Moderate increases in traffic receipts are shown by the four group companies for the past week, the L.M.S. being considerably the best. Each class of business shows some expansion except coal, which is better only on the L.N.E.R. For the 29 weeks of the year to date the four companies together have estimated traffics of £80,262,000 which are £3,704,000, or 4.84 per cent., higher than for the corresponding period of 1933. Passenger train earnings show a net increase of £304,000, merchandise earnings have improved to the extent of £2,414,500, and coal to the extent of £985,500.

	29th Week				Inc. or dec.	
	Pass. &c.	Goods, &c.	Coal, &c.	Total	Year to date	
L.M.S.R. ..	+ 16,000	+ 16,000	- 4,000	+ 28,000	+ 1,528,000	+ 4.94
L.N.E.R. ..	+ 5,000	+ 2,000	+ 2,000	+ 9,000	+ 1,820,000	+ 6.81
G.W.R. ..	+ 1,000	+ 6,000	- 3,000	+ 4,000	+ 402,000	+ 3.10
S.R.	+ 4,000	+ 1,000	- 3,000	+ 2,000	+ 257,000	+ 2.47

Mersey Railway traffics for the past week showed an increase of £235, bringing the aggregate increase up to £5,356.

* * * *

Mr. Arthur Towle on Hotel Service

No one, we imagine, will dispute the statement appearing in *The Daily Express* recently that Mr. Arthur Towle—a name to conjure with in the railway hotel industry—is "the greatest hotel chief in Europe." As controller of the L.M.S. Hotels Services, with something like seven thousand people and twenty-seven hotels under his immediate command, Mr. Towle occupies an absolutely unique position, and what he does not know about catering and all that the term implies is surely not worth troubling about. Interviewed by Mr. Gordon Beckles for the aforesaid daily paper on the subject of the hotel industry, Mr. Towle expressed his regret that ambitious young men are not more interested in the industry—in which, he contended, there are great opportunities and

better rewards (given an equal amount of intelligence) than there are in many other walks of life. But Mr. Towle very properly believes in thorough training and beginning at the very bottom of the ladder. He takes the view that the best training for this and most other businesses is the Royal Navy—for the reason that that particular school teaches the young man responsibility at an age when his fellows are mostly worrying about cricket averages. Ship life, too, teaches a man how to mix naturally with his fellows. The self-consciousness of the average young Englishman, however, and his social inhibitions constitute a factor in the situation. The young English boy is frightened of his friends seeing him as a waiter. Waiting here, Mr. Towle added, is not looked upon as a public service—as it is in more enlightened countries. Reminded that a good many managers of his big hotels are still foreigners, Mr. Towle replied:—"Yes, they are, although naturalised. But in the rank and file the last few years have seen enormous changes. I constantly find that men with the best French and Italian accents are English."

Overseas Railway Traffics

With the adoption since the beginning of the new financial year of the method of showing the conversion of Argentine railway traffics from pesos into sterling at the average official rate of exchange ruling during each week, there is a general decrease in their sterling receipts. In currency for the three weeks to date the Buenos Ayres & Pacific shows an increase of 230,000 pesos and the Central Argentine one of 469,450 pesos. Amongst Brazilian railways the Leopoldina for the 29 weeks has an increase in currency but a decrease of £15,528 in sterling, and the Great Western of Brazil for the same period is down £68,100 and 643 contos in currency. The Canadian Pacific has added £74,200 to its traffic increases during the past fortnight, and the Bombay, Baroda & Central India receipts have gone up £24,450 in the same period.

Railway.	No. of Weekly Week. Traffics.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
Buenos Ayres & Pacific ..	3rd	72,691	- 8,981	214,165 - 54,241
Buenos Ayres Great Southern ..	3rd	131,555	- 44,135	361,995 - 176,498
Buenos Ayres Western ..	3rd	43,373	- 14,602	131,983 - 53,007
Central Argentine ..	3rd	137,952	- 11,319	384,738 - 93,028
Canadian Pacific ..	29th	502,000	+ 43,400	12,898,400 + 1,376,600
Bombay, Baroda & Central India	15th	131,100	+ 10,875	2,467,650 + 100,875

Railway Legislation in Malaya

In their competition with other forms of transport the Federated Malay States Railways will be placed in a much more favourable position than hitherto by the important amendments made during 1933 to the Railway Enactments and Ordinance. These amendments have the effect of:

- (a) Cancelling the undue preference clause;
- (b) Cancelling the stipulation that the railways must provide transport facilities for any traffic;
- (c) Cancelling the clauses requiring the railways to publish their special rates.

The railways are now able to make definite contracts for stipulated quantities of traffic and also to restrict certain favourable rates to those who undertake to support the railways. The necessity for relieving the railways of the obligation to carry, on demand, all classes of traffic, is illustrated in the case of a railway user who was able to force on to the railways tapioca refuse—a commodity which causes rapid deterioration of wagons and can bear low transport cost only—whilst forwarding by road or sea tapioca flour, a higher grade commodity able to bear higher charges. Meanwhile the railways have been extending road motor collection and delivery services, and door-to-door services have been introduced at 111 stations.

Road Accidents in Great Britain

Beginning on Sunday, March 11 last, a new weekly police return was instituted, showing the number of persons reported as having died or sustained injury each week as the result of road accidents in Great Britain. For the sixteen weeks from that date to June 30 a detailed statement has now been prepared by the Ministry of Transport showing the aggregate figures in each police district. This gives totals of 1,789 in England, 92 in Wales, and 206 in Scotland having died, and 62,632 in England, 2,710 in Wales, and 5,956 in Scotland having been injured. The Metropolitan Police District easily tops the list with 421 fatalities and 18,639 injuries, or over 20 per cent. of the total (2,087) fatalities in Great Britain and over 26 per cent. of the total (71,298) injuries. No other district touches even 100 dead, but two geographical counties (Lancashire and Yorkshire) have totals respectively of 165 and 177, in each case, of course, including the towns which are separate county boroughs. Quite a number of moderately large districts, such as Accrington, Bootle, Hartlepool, Sunderland, and Margate, escaped even one death and also ranked low in the list of accidents. This is notable in a period including both Easter and Whitsun, and there is definite evidence in these statistics that the open road is more deadly than the town in many cases. For example, the rush to the Kent coast results in 49 dead (1,383 injured) in Kent County, excluding Canterbury, Dover, Folkestone, Gravesend, Maidstone, Margate, Ramsgate, Rochester, and Tunbridge Wells, which together total only 17 dead and 355 injured.

More Electrification in France

Primarily to relieve unemployment, the French are about to spend large sums of money on capital works. In our issue of July 13 we outlined the chief proposals, so far as the railways are concerned. They include widening works, new steel rolling stock, abolition of level crossings, extension into the suburbs of the Paris Metro, the carrying out of Monsieur Dautry's boldly conceived plan of diverting some of the principal main line traffic from the Havre, Rouen and Cherbourg directions into a capacious rebuilt Montparnasse terminus in Paris—so relieving the pressure at St. Lazare—and the electrification of some 500 miles of line. Apparently no time is to be wasted in putting these schemes into effect, for already it is announced—as we record in our Electric Traction Supplement this week—that the Etat main line from Paris to Le Mans, 131 miles, is to be electrified. The system will be 1,500 volts direct current, to be uniform with the Paris-Orleans-Midi main line electrifications. The Etat has a considerable mileage of third-rail 600-volt electrification in the Paris area, but it is unlikely that this will be converted to 1,500 volts overhead, in the meantime anyway, although that is what the P.O. did with its less extensive Paris suburban system.

Frontier Station Worries

A traveller recently returned from Germany tells us of an experience on a journey he undertook from Berlin to Budapest. When the train reached the frontier station of Bodenbach (Podmokly), the passengers had to alight and queue up at a small customs office on the platform where a handful of officials, some Czech and some German, endeavoured in vain to deal with something like 100 persons and their belongings in the 15 or 20 minutes available. Owing to the many different languages spoken there was considerable difficulty in arriving at mutual understanding and the general confusion finally led to the

train being delayed 20 minutes beyond its scheduled departure time, when the stationmaster, by now obviously perturbed, refused to hold it any longer regardless of the unfortunates who were still awaiting examination. The formalities required of railway travellers entering or leaving Germany at the present time, though more elaborate than they used to be, are, however, not always quite so exacting as on this occasion, for we have the evidence of a good many other travellers who have got through with remarkable despatch despite the requirements additional to the ordinary customs and passport examination which are now in force, such as the scrutiny of newspapers and other journals and the declaration of currency.

* * * *

American Freight Traffic

Figures published in *Railroad Data* suggest a noteworthy improvement in the prospects of freight traffic during the current year on the American railways. It is reported that on April 30 the companies had on hand 368,364 surplus freight cars in good repair and ready for immediate service. At the same time, orders had been placed for 15,964 new vehicles of this type, which will provide the railways with an additional available wagon stock of 384,328 vehicles. A year ago, the surplus freight cars totalled 379,100, to which was added new stock to the number of 1,561. The total additional requirements for 1933 had therefore been estimated at 380,661, a decrease of 3,667 compared with this year, while the surplus at the end of the year amounted to 97 per cent. of the extra provision made. In the first four months of 1934 the American railways installed 1,091 new freight cars, an advance of 198 on the figure for the corresponding period of 1933, but still 250 below those placed in service over the same period two years ago. An indication of the present recovery in freight traffic is given by the fact that 10,736 surplus cars were absorbed into traffic between April 14 and April 30.

* * * *

Accidents at Level Crossings in Sweden

The *Nordisk Järnbanetidskrift* publishes some interesting figures of accidents at level crossings on the Swedish State Railways since 1920. Caution must, of course, be observed in interpreting such figures as the number of persons killed in a particular accident is often a matter of chance and has nothing to do with the degree of negligence contributing to it. From 1920 to 1933, both years inclusive, 196 persons have been killed and 228 injured in collisions between trains and road vehicles at crossings. Of the 1,408 protected crossings, 790 now have barriers of the lifting type and 182 have gates. At the unattended crossings there are 24 automatic light signals installations, 157 automatic bell warnings and 255 instances of automatic lights and bells combined. These are spread over a total of 7,098 kilometres of line. The number of cases of vehicles being driven into the gates or barriers continues to be high, there having been 165 in 1933, pointing to extraordinary carelessness on the part of drivers. There was a sharp fall from 1930 to 1931 in the number of accidents at crossings protected by automatic signal warnings, due, it is thought, to the intensive educational campaign initiated by the railway management, during which 600,000 copies of a pamphlet "Beware of the Train" were distributed, but the improvement was not maintained in 1932 and 1933. Accidents at open crossings are more numerous in districts where the road traffic is local, and road users are generally well acquainted with the regular times of the trains, than elsewhere. Level crossings are a source of danger which could, of course, be completely eliminated by substituting bridges—an easy physical possibility the

realisation of which is prevented only by the superstition that money is a scarce commodity rather than a ticket system. Road users could, however, reduce the risks considerably by learning to take more care.

* * * *

Signal Back Lights

Signals are usually provided with small white back lights, which are visible when they are "on" and obscured directly the arms move appreciably away from that position. Practice has not always been the same in this matter. The Great Northern Railway provided purple glass in its back light spectacles to give a positive "off" indication, although the range of visibility of the purple light was necessarily not great, except on very clear nights. In the days when white was the all clear signal, a small green back light was often shown for the "on" position of a signal and a white one for any other. As signals were usually much longer "on" than "off," the practice of obscuring the light when a signal was cleared at first offered no serious objections. Nowadays, however, when so much switching out is being done, there may be some disadvantage in it, as at a station where the cabin is closed, the staff cannot observe the condition of the lights of the signals in their rear. Abroad, the practice varies a good deal. There is sometimes a distinctive light for both positions of a signal, as in Germany, where we find a large white light, shown through milk glass, for "on" and a small clear one, called starlight, for "off." In Holland only certain selected signals show a back light when "off." This light is yellow. The "on" back light for all signals is blue. These reflections suggest to us a conundrum for our readers. At what large London station are several signals to be seen, in full view of the public on the platforms, which still show a small green back light for "on" and a white one as soon as the arm moves from that position?

* * * *

More Successful French Rebuilds

Following the precedent set by the Paris-Orleans Railway in rebuilding twenty-year-old Pacific type locomotives on thoroughly up-to-date and in some respects entirely novel lines, most of the other French railway administrations have modified certain of their old express locomotives similarly. In this issue we illustrate one of twenty locomotives just delivered to the Nord by the P.O. Railway. These engines, rendered surplus to requirements by electrification, are actually old P.O. Pacifics, rebuilt in the Tours workshops of that company identically with its own locomotives. The main secret of the success of this rebuilding is almost without doubt the special arrangement of unrestricted flow for the steam from the boiler right into the cylinders, and thence similarly to the atmosphere, so that practically the whole energy of the steam is usefully expended. This secret revealed, it seems to be possible to achieve the result in various ways. An originally well-proportioned locomotive of course is assumed, and large steam pipes, valves and blast pipe must be provided. But on the P.L.M., as we showed in our issue of July 13, some of the standard Pacifics are being rebuilt with piston valves, whereas on the Etat the high-pressure cylinders remain with their piston valves, but new low-pressure cylinders, equipped with poppet valves, have been provided, yet in each case a remarkable improvement in performance has followed. No tests have yet been instituted to ascertain whether poppet or piston valves are better, but here in this country, Mr. Gresley promises to conduct such trials between his new 2-8-2 express engine *Cock o' the North* and the second of its type, otherwise identical, which will have piston valves.

The Northern Ireland Transport Problem Sir Felix Pole's Solution

WITH the publication this week of the report by Sir Felix Pole on the transport situation in Northern Ireland, there is a definite prospect of legislation shortly being introduced to provide for a real unification of road and rail interests in that territory. It will be remembered that early in April of this year, Sir Felix Pole accepted the invitation of the Government of Northern Ireland to advise it in an honorary capacity on the transport situation in Ulster and on the co-ordination of road and rail interests. He opened his inquiry on April 30 and gathered a mass of evidence from all parties interested, and his conclusions now so promptly framed show that he has thoroughly grasped the conditions which make the transport situation in Ulster particularly difficult. His recommendations are eminently reasonable, giving fair play to both road and rail interests and calculated so to regulate the situation as to provide the public with a permanently efficient transport service. The railways of Northern Ireland began to experience the serious competition of road transport in 1924, mainly on the passenger side. So far as passengers are concerned this competition has now come to be regulated and controlled partly by public enactments and partly by the action of the railway companies themselves in acquiring omnibus services from small owners and running them themselves so that they are now providing approximately 30 per cent. of the total travelling facilities afforded by this form of transport. In addition to controlling the granting of licences, the Ministry of Home Affairs now fixes routes, services, and timetables to which the licensees are to conform. Further, under the Motor Vehicles and Road Traffic Act, 1929, an independent body known as the Road Transport Tribunal of Northern Ireland was set up to fix fares.

The present position of road goods transport is, however, still very similar to that of passenger transport prior to control. It was stated in evidence that the railway has to compete with an irregular lorry service, charging uneconomic and varying rates for inwards traffic, and returning with outwards loads at any figure obtainable, regardless of cost of working. Between rail and road undertakings an intensive and bitter traffic warfare is being waged, and there is unjustifiable waste and overlapping of services. The apparent benefit to the public from this state of affairs will cease when economic forces bring about a reduction of facilities. Excessively low charges resulting from intensive competition cannot continue indefinitely. Sir Felix Pole is of opinion that the Government is entitled to restrict the use of public roads by commercial vehicles of certain types where all the reasonable needs of the public are met as adequately, cheaply and conveniently (having regard to all the circumstances) by rail as by road, or by a combination of the two systems. The necessity for some regulation and control of goods transport by road was admitted by practically all the witnesses at the inquiry. Licensing of goods vehicles, speed and safety regulations and the control of hours of labour are now provided for by the Motor Vehicles and Road Traffic Act (Northern Ireland), 1934, which was passed on June 28 last. More than this is needed. At first sight the most attractive solution of the problem would be the creation of a Northern Ireland Transport Board with power to acquire all existing transport organisations by means of an issue of stock in exchange for the securities of the railway and road companies on the basis of an agreed valuation, or failing agreement, on a basis settled by arbitration. Had general conditions admitted of the formation of such a board, administration would have been easy considering that the whole area to be controlled

is rather less than that of Yorkshire. Sir Felix Pole feels, however, reluctantly compelled to dismiss this idea in view of the special difficulties attending railway amalgamation in Northern Ireland. For instance, some 59 per cent. of the Great Northern Railway mileage is in Northern Ireland and the remainder in the Free State, and it would be extraordinarily difficult to assess the value of the parts situate in the two areas; moreover its headquarters are in Dublin and its works are in Dundalk. The lines of the Northern Counties Committee lie wholly in Northern Ireland, but the undertaking is part of the London Midland & Scottish Railway; it has no separate body of shareholders, and any change in its capital structure would affect the capital account of the parent company, and is a matter within the sole discretion of that company. Further, no amalgamation proposals were put forward by the railway companies themselves. Similar considerations rule out the nationalisation of transport suggested by the trade unions, even if from other points of view nationalisation appeared to be desirable.

Two other possibilities presented themselves: (1) that transport generally be left in the hands of the existing operators, subject to supervision by a new body vested with drastic powers of control and regulation; and (2) that a Northern Ireland Road Transport Board be constituted to take over all passenger and goods road motor services operated by road transport carriers, and the road services worked by the railway companies in Northern Ireland, including collection and delivery services, this board and the railway companies—at least the Great Northern, Northern Counties, and Belfast & County Down—to be required to enter into an agreement for pooling their receipts. Sir Felix Pole dismisses the first alternative as impracticable in view of the large number of small units involved, particularly in the carriage of goods by road, and recommends the second alternative. The railway companies made alternative proposals: either that road transport should be more heavily taxed and controlled, or that the Government should grant powers to the railway companies to enable them to become the sole providers of public transport in their respective areas. Sir Felix Pole does not adopt either of these proposals. Road vehicles in Northern Ireland are at present taxed 25 per cent. more heavily than they are in Great Britain, and more taxation would not bring about greater co-ordination. In the Free State, no doubt, the Great Southern, and the Great Northern Railways, and the Dublin United Tramways have become virtually the sole providers of transport in their respective areas, but this has been facilitated by the amalgamation of the greater part of the Free State railways into one undertaking, a state of affairs which does not exist in Northern Ireland. In the absence of any comprehensive scheme embracing amalgamation of railways, closing of branch lines or sections of railway which are no longer commercially justifiable, and the interlocking of railways and road transport, Sir Felix Pole cannot recommend the Government compulsorily to transfer road undertakings to the railway companies. Though he does not say so, he may well regard it as extremely improbable that such a recommendation would be accepted by Parliament. His recommendation of a Road Transport Board, however, ought to be accepted generally.

The suggested Road Transport Board would be formed in the first instance by an amalgamation of the larger road transport companies and the road services now operated by the railway companies. The board might then acquire the smaller undertakings as it thought necessary, their purchase price being settled by agreement or by a small arbitration tribunal. In the proposed pool the services operated by the Belfast Corporation should certainly be included. We entirely agree with the proposal that the

pooling scheme should not be based solely on the railway receipts for a recent year, in view of the situation created by intensive road competition. Sir Felix Pole points out that whereas the industrial depression experienced in recent years has merely impeded the development of road transport, it has seriously depleted the receipts of the railway companies, and that development of road transport has been largely at the expense of the railway companies. He suggests, therefore, that the pool should be based on the receipts for a standard year, which in the case of the railways should be the average between 1924 (the first year in which road competition began to be seriously felt) and 1932, and in the case of road undertakings should be the year 1932. This appears to be eminently fair, as the new pooling scheme should not perpetuate the uneconomic elements of existing competition. A standing joint committee of the rail and road interests, as in the case of London Transport, might settle the scheme. Such a plan would undoubtedly secure the maximum co-ordination of road and rail transport, as it would be in the interest of both parties to see that traffic was conveyed in the most economical manner, and that improved facilities should be granted so as to increase receipts. Sir Felix Pole would place the administrative supervision and control of road and rail transport under one Government Department alone, so that it should be the responsibility of one Minister. He suggests that absolute responsibility for framing rates and fares should rest with the railway and road organisations, and the provision of machinery for dealing with appeals, by the establishment of a transport appeal tribunal which should replace the Railway & Canal Commission and the Road Transport Fares Tribunal. It is not quite clear from the report what would be the nature of this tribunal, or why it is considered desirable to extend its functions to cover appeals against decisions by the Administrative Department of the Government on other matters. A court somewhat in the nature of the British Railways Rates Tribunal which would deal only with appeals relating to rates, fares and services would make for much greater efficiency. Another suggestion we would make is that private business vehicles on the road should be taxed at a higher rate than public service vehicles. Apart from these matters we welcome Sir Felix Pole's recommendations, and note with satisfaction that the Government of Northern Ireland has already approved them in principle as being likely to afford the best possible solution of the difficult problem with which they are faced. The matter is evidently one of urgency which should be dealt with immediately, both in the interests of the transport undertakings and the public.

* * * *

Private Siding Charges on Milk Traffic

JUDGMENT was given by the Railway Rates Tribunal on July 10 in an unusual application affecting the charges at a private siding which had been brought before the Court by the Nestlé & Anglo-Swiss Condensed Milk Company. This firm complained to the tribunal that the charges made by the London Midland & Scottish Railway for services rendered at or in connection with its private sidings at Congleton were excessive and unreasonable, and it applied to the tribunal to determine under the eleventh paragraph of the fifth schedule to the Railways Act, 1921, the sum to be charged. The firm concerned is the owner of a milk depôt adjoining Congleton station and connected with the London Midland & Scottish Railway by a siding constructed and maintained at the firm's cost, partly on its own land and partly on land belonging to the railway company under an agreement between the parties. From this depôt it forwards by passenger train

fresh milk in 17-gallon churns loaded by it into vans provided by the railway company and also in its own 3,000 gallon tanks mounted upon undercarriages provided by the railway. The firm performs the loading, unloading, and filling, but all other services required to be performed in connection with the forwarding of milk from, and the return of the empty churns to, the depôt are performed by the railway company. The charges made by the railway for the carriage of milk in churns loaded at the depôt are the same as are made for like consignments loaded at Congleton station, and carried to the same destinations, and were admitted by the railway company to contain a charge for the services performed by it in respect of the traffic at or in connection with the firm's siding, which was the same in amount in the case of each rate as the sum of the station and service terminals included in the rate in operation for the conveyance of similar traffic from Congleton station.

All the relevant charges were calculated in accordance with the exceptional owner's risk scale of rates for the conveyance of milk in cans, churns, or butts by passenger train brought into operation as from the "appointed day" except in those cases where lower rates had been granted from Congleton to specified places. In the case of none of the rates for the conveyance of milk in operation from Congleton station with which the tribunal was concerned, had the railway company shown in the quotation of the rate or in the rate book the amounts included therein for conveyance, station terminal, and service terminals and, therefore, the provisions of Section 40 (3a) of the 1921 Act, have to be applied for the purpose of ascertaining the amounts included for conveyance for station terminal and for service terminals in the station-to-station rates charged. The sums thus ascertained to be in the Congleton station rates for (a) station terminals at Congleton in respect of the full churns and (b) service terminals in respect of the full churns and the returned empty churns are not payable by the firm as the milk is not loaded nor are the empty churns unloaded at a station or place upon the railway and the railway company does not load or unload at the private siding. The issues, therefore, so far as milk in churns is concerned, were (a) what services rendered by the railway company are not part of or incidental to conveyance, and (b) what is a reasonable charge for such services. Upon the first issue the tribunal found it necessary to determine where conveyance of the outward full churns began and where conveyance of the returned empty churns ended. After reviewing the actual circumstances the tribunal reached the conclusion that conveyance of the outward traffic began when the van containing the full churns had been placed in position for coupling to the passenger train by which it was to be hauled to its destination; and that conveyance of the returned empty churns ended when the train by which they were brought back to Congleton station deposited the van containing them upon the station passenger sidings. The tribunal then found that certain services were thereafter performed by the railway company for the convenience of the applicants, none of which were part of or incidental to conveyance. In the circumstances of the firm's traffic, therefore, the tribunal decided that a reasonable sum for the railway to charge for these services was 2.75 pence per churn.

The firm's case in respect of the conveyance of milk in tanks was similar to that in connection with milk in churns, being based on the assumption that there was in the rates charged for the former a sum for station and service terminals of the same amount as in the case of milk in churns (subject to certain specified percentage reductions). The firm alleged that such a sum was not a reason-

able charge for the services rendered at or in connection with its sidings at Congleton, and it accordingly asked the tribunal to determine under paragraph 11 (i) of the fifth schedule of the Railways Act, 1921, what was a reasonable charge therefor. As the paragraph in question confers upon the Court authority only to determine a reasonable charge for such services when no rate or charge is "otherwise provided" for the services, it was essential that the tribunal should examine the powers of the railway company for the charging of milk in owners' tanks. Prior to 1929 the conveyance of milk in tanks was in an experimental stage. Before that year the classification of milk for the purpose of carriage by passenger train was divided into two sections, A and B, the former comprising milk in cans, churns, or butts, and the latter milk in bottles, in cases, and for these two sections standard rates covering conveyance and station and service terminals were settled by the tribunal. In 1929 it was considered that the use of owners' tanks (and also the conveyance of milk in cardboard containers packed in cardboard cases) would become common, and at the request of the railway companies the tribunal added to the classification two new classes covering these traffics, and later settled a scale of standard charges for each. Milk in owners' tanks was placed in section D, and the scale of standard charges therefor differed from the other three scales in that no station or service terminals are provided. In place thereof a charge per tank is provided for "services performed by the company at the beginning and end of transit of (a) full and (b) empty tanks," the reason being that when these standard charges were settled milk in tanks passed between dairy companies' depôts only. The tribunal accordingly found that the word "transit" had the same meaning as the word "conveyance" used in previous paragraphs of the same Section, and therefore decided that the charges specified in the last column of section D were the charges which the railway company is authorised to make for the services it performs before and after conveyance of the firm's full and empty tanks. As a charge for these services was thus "otherwise provided" within the meaning of paragraph 11 (i) of the fifth schedule, the tribunal held that it was not required and had no jurisdiction to determine any question as to the reasonableness of the charge made by the railway for the aforesaid services, or what is a reasonable sum for it to charge.

Bombay, Baroda and Central India Railway

THE substantial improvement both in gross and net earnings recorded by this company in the report for the year ended March 31, 1934, follows on a smaller advance in these respects for the previous year. For the year under review the gain in gross receipts was principally on the broad gauge, though metre gauge receipts were also appreciably higher. The combined system, apart from the 686½ miles worked for Native States and other companies, now consists of 1,035½ miles broad gauge, 1,898½ miles metre gauge, and 72½ miles 2 ft. 6 in. gauge worked by the company for the Government of India. Gross receipts of the combined system for the year under review increased by Rs. 43,11,710 to Rs. 10,70,94,321, and in the expenditure of Rs. 5,88,12,808 there was a reduction of Rs. 2,58,629, so that the net earnings of Rs. 4,82,81,513 showed an advance of Rs. 45,70,339 in comparison with 1932-33. The company's share of surplus profits, after deducting Indian income tax and super tax, is Rs. 6,65,348, compared with Rs. 5,12,652 for the previous year and has produced £49,849 in sterling, as

against £38,620 in the previous year. Stockholders receive 6 per cent. (including 3 per cent. guaranteed interest) for the year under review, the same as for the last thirteen years. The following table compares some operating results for the combined system, a rupee being 1s. 6d.

	1933-34	1932-33
Passengers, number	53,896,486	56,327,813
Passenger receipts, Rs.	3,34,96,551	3,39,82,018
Tons carried	7,965,660	6,938,061
Average receipt per ton-mile, pies	8-21	8-68
Goods receipts, Rs.	6,31,48,612	5,79,83,720
Gross train-mile earnings, Rs.	6-99	6-89
Net train-mile earnings, Rs.	3-15	2-93
Train-miles	15,308,175	14,911,582
Net earnings per mean mile worked, Rs.	16,062	14,555
Operating ratio, per cent.	54-92	57-47

Coaching receipts on the combined system showed a net decrease of Rs. 6,50,783, mainly due to smaller ordinary passenger earnings on the metre gauge, though there was a slight improvement in season ticket receipts on both gauges. Though ordinary passengers were fewer in all classes except the intermediate, receipts were higher except in third-class ordinary. General merchandise receipts improved by Rs. 40,65,454 and fuel by Rs. 14,16,818, but there were slight decreases under other headings. In general merchandise the principal increases were in grain, cotton, and wrought iron and steel. The cost of maintenance of structural works increased by Rs. 8,69,153, chiefly due to partial restoration of percentage cuts and to repairs necessitated by flood damage. Maintenance and supply of locomotive power cost Rs. 9,96,480 less, in spite of partial restoration of salary and wage cuts.

Federated Malay States Railways

THE report for the year 1933 has been sent to us by Mr. D. H. Elias, the General Manager. There is again a loss on working, following on those of 1931 and 1932, due to the continued trade depression, intensive road competition, and large payments in respect of pensions and gratuities to retrenched employees. There are indications, however, that the trade depression is lifting, as the fall in revenue has been arrested, and a slight improvement was recorded during the last six months of the year. In consequence of road competition one branch line has been closed and passenger services have been abandoned on two others. The position regarding road competition is, however, likely to be remedied by important legislative amendments which are referred to in an Editorial Note. The general financial position is indicated in the accompanying table, the Straits Settlement dollar being equivalent at par to 2s. 4d.

	1933	1932
	\$	\$
Passenger train receipts	3,121,302	3,685,750
Goods train receipts	3,988,231	4,037,965
Total railway receipts	7,381,600	7,937,473
Railway expenditure	12,650,146	12,560,505
Loss on railway working	5,268,546	4,623,033
Road transport, ferries, and harbours (net)	79,939	Dr. 30,389
Rentals, interest, &c. (net)	67,171	Dr. 459,316
Net deficit	5,121,436	5,112,738

Amongst the ancillary services, harbours showed a profit, but ferries and road transport a loss in both years. The debit under rentals in 1932 is accounted for by the fact that the rent payable in that year to the Johore State Railway was \$470,000, whereas in 1933 it was reduced to the nominal figure of \$1. The report refers to the system of mechanised accounting, which was described in THE RAILWAY GAZETTE of May 18, 1934.

PUBLICATIONS RECEIVED

History of Indian Railways, 1934.

—Delhi: The Manager of Publications, Government of India Railway Department. 294 pp. 13½ in. × 8½ in., and coloured folding map. Price Rs. 6, or 9s. 9d.—In accordance with an arrangement made some 15 years ago, an historical and statistical volume relating to Indian railways was prepared, and is revised and re-issued at five-yearly intervals. The first covered the position as at March 31, 1918, and the present volume, which is the fourth quinquennial reprint, has been corrected up to March 31, 1933. The Indian railway systems have been classified under three headings for statistical purposes, namely, class I, undertakings with gross annual earnings of Rs. 50 lakhs and over; Class II, with earnings of less than Rs. 50 lakhs but more than Rs. 10 lakhs; and class III with earnings of Rs. 10 lakhs and under.

The volume contains, for each railway administration, dates of opening; mileage and gauge; running powers; statistics of working over long periods; details of construction (such as type of permanent way, ballast, fencing, maximum curves, and ruling gradients); and, in the case of company-owned or worked lines, particulars of the concession. Black and white maps accompany the details of each system, and an excellent folding map in colours of all the Indian railways is inserted in an envelope at the back of the volume. The work is both a valuable historical and statistical reference record and also an indispensable desk companion to all concerned with the working of Indian railways.

Design in Modern Life. Edited by John Gloag. London: George Allen & Unwin Limited, 40, Museum Street, W.C.1. 10 in. × 7½ in. 138 pp. Illustrated. 10s. 6d.—In 1933 a series of talks upon design in modern life was broadcast by the B.B.C., and they are here produced in book form, under the editorship of Mr. John Gloag, who asks his readers if they are satisfied or not with the design of things around them. His able contributors press home that question. Mr. E. Maxwell Fry discusses the design of dwellings, and also design in the countryside and the town. He sets down the elemental requirements of the house; he points out that the three chief elements of a town are work, shelter, and communications, with the later addition of relaxation, and shows how the crowded artisan dwellings of the 19th century industrial age thwarted spacious layout in towns.

The modern trend in the design of furniture for the living-room is Mr. Gordon Russell's subject; he advocates a simplicity that will rest us in this complex life, and sums up his creed in a phrase: "Good design will please you after seeing it continuously for years." Mr. James Laver treats of

design in clothes, tracing the origin and development of articles of attire; he considers that fashion should be watched by sociologists, for it is a sensitive weathercock. The chapter upon design in the kitchen, by Elizabeth Denby, describes how labour may be saved by thoughtful planning. Mr. A. B. Read deals with the design of illumination, and suggests non-glaring arrangements of lighting. Mr. Robert Atkinson talks of design in public buildings, with special reference to schools, theatres, and hospitals. Mr. Frank Pick criticises the design of the street, and asks that the particular purpose of each street should be studied. He ends the volume with a chapter upon the meaning and purpose of design, suggesting that we should question each feature of our environment, and get out of the grooves of habit. He murmurs what Veblen proclaims—that snobbery is at the root of much bad design. This volume touches lightly, but incisively, upon a very interesting subject, and the illustrations illuminate the text.

Holiday Literature in French.

The British railways have combined in the publication of two illustrated folders in French, with a view to stimulating tourist traffic from the Continent to this country. One of these, "Vos Vacances dans les Iles Britanniques," gives a general survey of the scenic and historical attractions of these islands. A brightly-coloured cover showing figures in the traditional costumes of Scotland, Wales and Ireland, and an English "Beefeater," emphasises the more picturesque, albeit rarely encountered, aspect of our national life. The introductory letterpress stresses the cheapness of a holiday in England for the French visitor, both by reason of the favourable rate of exchange and the many reduced fare facilities now in operation. Misgivings as to the variety of landscape offered by so relatively small a country are ingeniously countered by quoting such descriptions as "the English Riviera" for Devon and Cornwall, and "the British Tyrol" for North Wales. A judicious selection of excellent pictures, together with descriptive matter that gains in conviction by jettisoning the conventional superlatives, help to persuade the reader that the British Isles offer all the major attractions of the mainland of Europe. Illustrations of a first class compartment of the Royal Scot and the Louis XVI restaurant car of the Flying Scotsman, and of the Southern Railway Bournemouth Limited and a Great Western express hauled by a "King" class locomotive, have been chosen to represent modern British railway achievement.

The second folder, "Le Pays de Shakespeare," covers Stratford-on-Avon, Warwick, Kenilworth, Leamington and Rugby. It is pointed out that in

addition to its association with the great playwright, this area of the southern Midlands has been the source of the main streams of British social development. The historical background of the country is treated with understanding and combined with the illustrations should be a real stimulus to travel. Particulars of excursions by the Great Western and London Midland & Scottish railways to the centres described conclude the folder, which has as its cover design a coloured view of the Memorial Theatre at Stratford as seen from the Avon.

Paddle Wheel Fans.—James Keith & Blackman Co. Ltd., of 27, Farringdon Avenue, E.C.4, sends a catalogue of paddle-wheel fans, dust settlers and filters. Although largely superseded by the multivane type for handling clean air, the paddle wheel fan has many advantages in dust removal, pneumatic conveying, and other duties where the free air passage afforded by its six or eight flat vanes is a desirable feature. The fans listed here are suitable for belt or direct electric motor drive. They can be supplied complete with motors or with couplings for connecting up to customers' own power units. The catalogue also shows centrifugal and vortex type dust settlers and textile filters. A centrifugal oil type filter can be supplied either separately or in combination with belt or electric-driven fans.

Accounting for Management Control.—Powers-Samas Accounting Machines Limited, Aldwych House, Aldwych, W.C.2, sends an illustrated and descriptive catalogue of automatic equipment for the accounts department. We have already described a representative installation by this firm in the mineral department at Derby, L.M.S.R., in THE RAILWAY GAZETTE of February 9, 1934, and showed the economies of time and labour effected by such a system. The present catalogue, which deals with the latest range of Powers-Four machines, gives further proof of its possibilities. Accounts transactions are recorded by the punched-card method, this operation being performed by single or gang punches specially adapted to being worked at high speed and with accuracy, even by operators new to mechanised accountancy. An automatic sorter is supplied to select and arrange the punched cards in any desired order, after which the information contained thereon is interpreted into statement form by a printing tabulator. Various applications of Powers-Samas machinery are described in the booklet, and special emphasis is laid upon the fact that it can be used for every phase of accounting and for disclosing the factors of management problems in every department of business. The Technical Studies Department of the firm is always pleased to assist in the application of Powers methods to any class of work.

THE SCRAP HEAP

"The new washerwoman has stolen two of our best towels."

"The thief. Which are they?"

"Those marked L.N.E.R."—From the "Northern Mail."

Walter Regan, a train conductor on the C.N.R., won a prize of about £900 in a sweepstake. Away from home fulfilling his duties he was perturbed, for under Canadian law sweepstake winnings are given to the first common informer. He thought hard and then telephoned his wife, who immediately applied to the courts and claimed her husband's prize as a common informer.

2,000 ANGLERS SEEK SPORT ON RAILWAY CANAL

Nearly 2,000 anglers are to compete in six fishing matches which have been arranged by various clubs to take place this season on the waters of the Shropshire Union Canal, which is owned by the L.M.S. Railway. Among the matches is one organised by the Crewe Unemployed Association, to be held at Calveley (Cheshire) on August 4, when 175 anglers are expected to compete. The L.M.S.R. recently re-stocked the

Shropshire Union Canal with 13,000 coarse fish, including dace, roach, perch and rudd.

He is the kind of motorist who thinks that a locomotive whistles at crossings just to keep up its courage.—From "600" (Geo. Cohen, Sons & Co. Ltd.).

Dr. Cumming, in a lecture at Yeovil last week, maintained that the destiny of England is to aid most materially in gathering together the tribes of Israel and conveying them back to Jerusalem; that George Stephenson's wonderful invention, the locomotive engine, is to be the means by which they will be transmitted to the home of their ancestors; and that those Jews who cannot reach Jerusalem by land will be carried across the ocean by steam-boats.—From the "Illustrated London News" of November 23, 1861.

AMERICA'S SMALLEST RAILWAY?

What is claimed to be the smallest railway in the United States is free of debt and is making money, according to a Cassville, Missouri, press message.

This line, the Cassville & Exeter Railroad, is only $4\frac{1}{2}$ miles long and is owned by one man, Mr. David Ringler, the President of the company. Only once has the railway had an accident. That was in 1919 when two wagons became uncoupled and jumped the tracks, tearing through several buildings and killing two people. Now the staff of the railway is to be radically cut down.

Mr. David Ringler, a former stoker, who has driven the 40-year-old engine ever since he owned the railway, is to hand it over to one of the seven employees of the line.

A northern Ontario schoolteacher is in a quandary. His class assembles in a converted railway car that is sent at intervals by the Ontario Government for the regular education of children in outlying settlements where no regular school buildings are available. His car

LONDON LAUGHS . . . By LEE

KING'S CROSS



"Will ye just hold this up as ye pass through Auchtermoultie?"

Last week the "Evening News" cartoonist evidently visited King's Cross station, L.N.E.R., to secure the above inspiration



BI-LINGUAL RAILWAY NOTICES

Trespass notices in both English and Welsh are familiar objects on L.M.S.R. premises in North Wales. The old L.N.W.R. one shown above was photographed recently at Degannwy, on the Llandudno branch

was due to be moved to its next point on the C.N.R. when a discovery was made. A robin had nested on the wheels and had hatched out four hungry fledglings. The teacher's problem is, shall the fledglings be sacrificed to the cause of education, or education to the fledglings?

THE FITNESS OF THINGS

Green-lane station on the Mersey Railway is painted throughout—a vivid grass green!—From the "Liverpool Post."

A press message from Berlin states that Reichsbahn employees who have distinguished themselves in their work or in sport are to be presented with copies of Herr Hitler's book, "Mein Kampf" (My Struggle). They will also receive a copy on the conclusion of 25 years of service.

It is revealed in the report of the Federated Malay States Railways for the year 1933, that considerable damage was done to the Sungai Yu station building (Pahang) by elephants on December 27, 1933. Most of the plank walling, including six windows and one door were completely smashed, also 60 lineal feet of 9 in. half round concrete drain and one concrete station name board.

EFFICIENCY?

In recording the quarterly road accident figures, compiled by the Metropolitan Police for the quarter ended June 30, *The Daily Express* headed its column

ROAD DEATHS ARE HIGHER BUT FEWER INJURED

Is road transport becoming even more thorough?

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

*Increases of speed and comfort in New South Wales—
Italian excursion and tourist traffic—Paris-Le Mans
electrification scheme—The Chinese Eastern negotiations*

AUSTRALIA

Express Railcars in New South Wales

Included in the 6,164 route miles of standard gauge line which comprise the New South Wales Government railway system, are many branches serving sparsely populated portions of the State. Most of these areas are devoted to wool and wheat production, and traffic on the railway varies greatly in volume. During the height of the wool and wheat seasons, train loads are being hauled in the direction of Sydney, and, at other times of the year, supplies, fertilisers, and farming implements are going in large quantities in the opposite direction. Outside these occasions, the lines are comparatively quiet, but goods and passenger services are maintained throughout the year.

Formerly mixed trains were run on such lines, but the advent of the railcar has enabled much improved passenger services to be provided. The Department now has 37 railcars in commission, running an aggregate of more than 1,000,000 miles per annum.

The latest development in this field is the construction at the Government railway works of the first of a series of 260 h.p. Leyland petrol-engined express railcars. (One of these was illustrated and briefly described on page 1144 of our issue of June 29.—Ed., R.G.) Designs were prepared and the construction carried out under the direction of Mr. H. Young, the Chief Mechanical Engineer. This railcar and its trailer are being placed in service of an extensive section of line in the far west of New South Wales.

Passenger Comfort

The express railcar provides seating accommodation for 20 first class and 29 second class passengers, while the trailer seats 16 and 47 first and second class passengers respectively, making a total of 112. The seats, which are upholstered in blue leather, are reversible so that passengers may face the direction of travel; special consideration was given to the design and construction of the seats, which correspond in comfort to those in the latest long distance main line passenger carriages.

The interiors of the cars are finished above the window rail with varnished

cedar, and in blue leather cloth below the window rail. Large side windows are provided to ensure unobstructed observation. Each window is fitted with spring roller blinds, blue in colour, to match the interior upholstery.

Electric lighting is provided throughout, special lamps being fitted to give soft lighting. Each compartment is also fitted with an electric fan. In addition to powerful head lights, a vertical beam light is provided to give additional warning at level crossings. Lavatory accommodation is provided at each end of both motor and trailer cars. The exterior of the cars is enamelled cream colour, outlined with blue, the light colour being used both for its pleasing appearance and for the reflection of heat.

The Longest Non-Stop Run

Beginning on June 17, the Melbourne Limited express has run non-stop from Goulburn to Strathfield, a distance of 130½ miles, thus giving the New South Wales Government Railways the record for the longest non-stop run in Australia. In the opposite direction the Sydney Limited of the Victorian Railways now runs non-stop over the 129½ miles between Seymour and Albury. The trains have been accelerated by 15 minutes from Melbourne to Sydney and 5 minutes in the reverse direction.

ITALY

Sunday Services

The popular Sunday trains have so far been running with considerable success both as regards number of passengers and takings. In the Milan division during the month of June, 56,890 tickets were sold against 45,658 in 1933 and the takings amounted to 1,133,000 lire (£19,000) against 923,000 lire (£15,400). In order to allow working men who are occupied on Sundays to benefit by these facilities, special trains during the week are occasionally arranged.

Permanent Way Improvements

Reference has repeatedly been made to the continuous improvements of the permanent way and to the substitution of old bridges with new steel bridges to meet modern traffic requirements. Amongst the most important bridges recently completed should be mentioned

those over the River Neto between Strongoli and Cotrone (on the Reggio-Metaponte line) and that over the river Pantano on the Eboli-Potenza line.

Tourist Traffic Encouraged

The ENIT (Ente Nazionale per l'Industria Turistica) is largely responsible for the continuous increase of tourist traffic in Italy. Its monthly publication, "Travel in Italy," is becoming every month more interesting and better illustrated.

Visitors will appreciate the fact that the Italian station restaurant and buffet keepers are improving their services by the formation of a National Consortium, whose object is the collective purchase of foodstuffs, materials, etc., and the running of restaurants and buffets on a collective basis. Signor Valiani, whose station restaurant at Rome has an international and well deserved reputation, has been elected President.

GERMANY

Cheaper Time-Tables

With the beginning of the summer services the five German Railway sectional time-tables have been reduced in price from 1.50 marks or 1.20 marks to 1.00 mark each.

Sassnitz-Trälleborg Train Ferry

On July 6 the important train ferry between Sassnitz and Trälleborg completed 25 years service. This event was celebrated by representatives of the railways concerned, namely, the Swedish, Norwegian, and German railways. Dr. Dorpmüller, the General Manager of the Deutsche Reichsbahn, stated that during the first six months of 1934 the passenger and the parcels traffic had increased by 7 and 10 per cent. respectively compared with the previous year, so that there was a good outlook for further improvements. Mr. Granholm on behalf of the Swedish, and Mr. Ingier on behalf of the Norwegian, railways paid tribute to the spirit of comradeship which prevailed among the administrations during their long standing co-operation in maintaining the service.

[The history of the Scandinavian train ferries formed the subject of an article on page 69 of our issue of July 13.—Ed. R.G.]

Reichsbahn Summer Meeting

The board of the German Railway Company, according to its tradition of sitting once every year outside Berlin, held its summer meeting on July 3 and 4 in Breslau, the capital of Silesia. The board dealt with the financial position. The receipts of the first six months of the year show an increase of 15 per cent. compared with 1933; namely 7 per cent. on account of passenger traffic receipts and 19 per cent. on account of goods traffic receipts. At the same time expenditure has gone up similarly, mainly due to the expenses of additional

staff and increased orders for provision of work. Furthermore, the agreement which has been settled between the German Railways and representatives of the leading road transport undertakings was discussed with a view to re-arranging the regulations and conditions of goods motor transport.

Opening out a Silesian Tunnel

Special interest was aroused by a visit of the board to the Schönhuter tunnel on the Waldenburg-Hirschfeld line in Silesia, where the tunnel has been opened out so that the line now runs in a deep cutting.

Oberammergau Traffic

In 1933 King Fuad I. of Egypt presented a cup to be awarded to the best poster for attracting traffic. In this international competition the German Railway has been awarded the first prize for the Oberammergau poster. This year, the jubilee Passion Plays, well supported by the German Railway propaganda and comprehensive facilities for visitors, have attracted a considerable traffic to Oberammergau and the other many Bavarian health resorts.

FRANCE

Electrification and Other New Works

In reply to protests by Paris tradesmen that the proposed transfer of long-distance trains from the St. Lazare terminus to Montparnasse* would be detrimental to the business of hotels, cafés, restaurants and shops established in the vicinity of the St. Lazare station, M. Dautry, General Manager of the State Railways, endeavoured to reassure them by stating that only a small proportion of the trains now entering the St. Lazare terminus would be transferred and that in any case the plan could not be made effective immediately. The first stage in carrying out the plan would be quadrupling the line between Paris-Montparnasse and Versailles. This would be undertaken at once, but would require three or four years for its completion. In this connection he announced that the scheme comprised the electrification of the main line as far as Le Mans, 131 miles, on the 1,500-volt d.c. overhead system. The next step would be the rearrangement and enlargement of the Montparnasse station to make it a practical terminus capable of dealing with the long-distance traffic. The principal long-distance traffic to be transferred to this terminus would be the transatlantic boat trains, whose timetable is more or less irregular, as it depends upon the hours of arrival and departure of the great ocean liners. The regular service between the St. Lazare station and Normandy would not be changed. M. Dautry concluded by expressing the hope that the railway traffic would again become so intense with the ex-

pected revival of trade that the St. Lazare station would still be fully utilised and the interests of the tradesmen would not suffer by the transfer of the boat trains. It may be explained that the changes do not involve the transfer of the cross-Channel services.

A considerable amount of railway improvement works will be undertaken in the Paris district in connection with the Marquet plan for the relief of unemployment recently approved by Parliament. The plan includes the extension of three of the Paris Metro lines into the suburbs, in addition to the extensions recently carried out. The new extensions comprise the prolongation of the Metro line No. 1 from the Porte Maillot to the Pont de Neuilly; line No. 17, into the Levallois-Perret suburb as far as the Pont de Levallois; and line No. 9, in the direction of Montreuil as far as the local townhall. The cost is estimated at 300,000,000 francs, or £3,750,000 at 80 francs to the £.

Diesel Services on the Nord

The two triple-unit 820 b.h.p. diesel-electric trains just acquired by the Nord, and which were fully described in the *Diesel Railway Traction Supplement* for July 13, are beginning regular operation to-day. During the course of trials held on Monday last, a speed of 90 m.p.h. was attained, and on a slight down grade the train was brought to rest from this speed in a time of 36 sec. and in a distance of 930 yd.

Withdrawal of Passenger Service on Petite Ceinture

Passenger traffic on the Chemins de fer Ceinture ceased after the last trains of Sunday, July 22, on the Petite Ceinture. These were trains Nos. 301 and 307 (inside track) and 302 and 314 (outside track). The service had been in operation since 1868. Now the only remaining section of this line, which circles Paris just within the old fortifications, is between Auteuil-Boulogne and Pont Cardinet, which is worked by the French State Railways making connection at Pont Cardinet (by change of train) with St. Lazare. Over this Etat-worked section the Ceinture passenger trains did not run.

Attempted Derailment of Bugatti

The Etat Bugatti high-speed railcar running between Paris and Deauville had a narrow escape from a serious accident yesterday morning. The car, carrying 50 passengers, was travelling at 80 m.p.h. (its authorised speed on this section of line) when at a point between Mantes and Evreux it struck a railway sleeper held on the rails by heavy stones. Fortunately, the vehicle was not derailed. Although the underframe was damaged, the car was able to proceed to Evreux using only two of its motors. The passengers, who were unhurt except for a severe shaking, continued their journey from Evreux by ordinary train. Shortly after the accident, the local gendarmes

arrested a 16-year-old youth named Paul Boyet, who admitted that he had placed the obstacles on the line, but gave no explanation of his act beyond saying that he had had "a little to drink."

THE FAR EAST

Canton-Hankow Railway

It is anticipated that a direct express service between Canton and Lochang will be inaugurated on August 15.

[The progress of the work on the Canton-Hankow Railway was described in an article on page 119 of our issue of July 20.—Ed. R.G.]

Chinese Eastern Railway

It is understood that the negotiations for the transfer of the Chinese Eastern Railway (or the North Manchuria Railway as the Japanese authorities term it), from the U.S.S.R. to the State of Manchukuo are drawing to a close. A final proposal was submitted on July 23 by Manchukuo to the Soviet delegate, through the Japanese Foreign Minister. Manchukuo offers to make certain concessions if the U.S.S.R. is willing to reciprocate. In that event a final conference is expected in Harbin next month, which, it is hoped, will bring 14 months of negotiation to a successful conclusion.

Diverse S.M.R. Investments

Some 64 companies are now operating under the control of the South Manchuria Railway Company. Their authorised capital is divided into the following three monetary categories: Yen 451,020,000 (Japanese currency); \$5,850,000 (in Manchukuo yuan); and £2,000,000 sterling. The amounts of paid-up share capital invested by the S.M.R. in these enterprises total as follows: Yen 144,719,212.50 (Japanese currency); \$125,000 (in Manchukuo yuan); £49,098 (British currency). The activities of the group include iron, chemical, magnesium, petroleum, tobacco, and coal production; building and public works; hotel and newspaper management; and power supply. Nine companies are engaged in transport and warehousing, including the Manchuria Telephone & Telegraph Co., the D.K.K., the International Express Co., and the Manchuria Airways Co.

THE INSTITUTION OF WELDING ENGINEERS.—As from Monday, July 9, the secretary and registered offices of the institution are Mr. F. Stoyke, 7-8, Holborn Hall, Gray's Inn Road, London, W.C.1. We understand that the appointment of a full-time secretary and the acquisition of new offices was necessitated by the rapid growth in membership during the last few years, and the work entailed in consequence of the fact that the institution is widely recognised as the body representing welding interests in Great Britain.

* See THE RAILWAY GAZETTE, July 13, page 49.

THE TRANSPORT PROBLEM IN NORTHERN IRELAND

Report by Sir Felix J. C. Pole, who recommends control of all road passenger and freight services by a transport board and pooling of railway and road traffic receipts. He does not recommend an amalgamation of railways in view of the special difficulties involved

SIR FELIX POLE was invited in April last by the Government of Northern Ireland to report on this subject, the terms of reference being indicated as below:—

The problem of transport in Northern Ireland has been giving our Government considerable concern, and the co-ordination of road and rail transport here is now a matter of urgency. It will have to be dealt with at an early date by the Government, and it is of great importance that we should be able to formulate a policy which will be fair to the interests concerned and at the same time will ensure an efficient system of transport for Northern Ireland.

Representatives of the interests concerned, including railway companies, three important omnibus undertakings, road hauliers, Lagan Navigation Company, local authorities, chambers of commerce, Ulster Farmers' Union, the three railway trade unions, Amalgamated Transport and General Workers' Union, Londonderry Employers' Federation, and the Great Northern Railway Shareholders' Protection Association, were interviewed by Sir Felix Pole in Belfast in May and submitted their views.

The following is a summary of the chief points dealt with in the report:—

Northern Ireland consists of six counties, Antrim, Down, Armagh, Fermanagh, Tyrone, and Londonderry, with the county boroughs of Belfast and Londonderry. It is mainly agricultural, but a considerable amount of manufacturing is carried on in Belfast and its surroundings. The principal manufactures are linen, shipbuilding, tobacco, and ropes and twines, and the major portion of the industrial population lives in the neighbourhood of the four ports of Belfast, Londonderry, Newry and Larne. The greater part of the area to be served by the transport system has a relatively sparse population. The area of Northern Ireland is rather less than that of Yorkshire, while the population is not materially greater than that of the City of Birmingham.

This comparatively small country is served by the following nine railway systems, those situate wholly in Northern Ireland being indicated by an asterisk, while the remaining six operate in the Free State as well:—

- Great Northern Railway Company (Ireland).
- *London Midland & Scottish Railway Company (Northern Counties Committee).
- *Belfast & County Down Railway Company.
- Sligo, Leitrim & Northern Counties Railway Company.
- Londonderry & Lough Swilly Railway Company.
- Strabane & Letterkenny Railway Company.
- Dundalk, Newry & Greenore Railway Company.
- *Clogher Valley Railway Company.
- County Donegal Railways Joint Committee.

The total route mileage is 754 miles, of which 281 miles of 5 ft. 3 in. gauge and 118 miles of 3 ft. gauge belong to railways wholly in Northern Ireland, while the mileage in Northern Ireland of railways extending into the Free State comprises 349 miles of 5 ft. 3 in. gauge and 6 miles of 3 ft. gauge.

The Northern Counties Committee, the Great Northern, and, to a lesser extent, the Belfast & County Down, provide facilities for which road motor transport would not be a satisfactory substitute, but some branch lines of those railways and the narrow gauge lines would not have been

constructed had modern motor transport and modern roads been available.

Road Services

In addition to a very complete system of railways, Northern Ireland has ample road facilities, the total mileage being 12,997, or 1,348 miles of roads per 100,000 population, as compared with a total of 177,347 miles in Great Britain and 394.1 miles per 100,000 population. About the year 1923 omnibuses first appeared on the roads of Northern Ireland to carry out regular runs between various points. They were mostly run by small owners in provincial towns, and only one of the original operators (H. M. S. Catherwood) has become an operator on a comparatively large scale. By 1926 numerous omnibus services were being run without regard to any system and largely in fierce competition with each other. The first step in regulating road motor traffic was taken by the Government in passing the Motor Vehicles (Traffic and Regulation) Act (N.I.), 1926, under which the licensing of public service passenger vehicles was transferred to the Ministry of Home Affairs. In 1928 the Belfast Corporation was given a monopoly of both tramway and omnibus passenger services within the city limits, but for other omnibus services a system of regulation and control was put in force, which laid down that so long as the operators carrying on regular scheduled services provided adequate and satisfactory services on the routes on which they were operating on August 27, 1928, they should be protected against competition. In addition to controlling the granting of licences, the Ministry of Home Affairs fixed routes, services, and time-tables. Fares are fixed by the Road Transport Fares Tribunal, which was set up by the Motor Vehicles and Road Traffic Act (N.I.), 1929. Under this new system of control the number of separate operators licensed to run regular passenger road services has been reduced from 180 to 52, viz.:—

	No. of Licensed Buses
Belfast City Tramways	53
Northern Counties Committee (L.M.S.) ..	130
Great Northern Railway	58
Londonderry & Lough Swilly Railway ..	22
Belfast & County Down Railway	14
	224
Belfast Omnibus Co. Ltd.	147
H. M. S. Catherwood Limited	76
J. H. O'Neill, Bangor	27
W. E. Hobson, Dungannon	14
Baird & Weir, Belfast	11
	275
Single Bus Operators	14
28 Operators with more than one bus but less than 10	111
Total	677

Reliable statistics of the number of operators of goods vehicles are not available, as at the time of Sir Felix Pole's inquiry no system of licensing was in force, but there can be no doubt of the extensive nature of the road transport goods services.

Omnibus competition affecting the railways began to

become acute about the year 1924. Under a general statute, the Railways (Road Vehicles) Act (N.I.), 1927, which was passed on May 31, 1927, the railway companies were given power to provide, own, and maintain omnibuses, coaches and road vehicles for the conveyance of passengers and merchandise, so that they were put in the same position as other operators of road transport. At August 27, 1928, when control was imposed, the railway companies had no road passenger services in operation, and so were virtually deprived of their powers, as new services could not be set up. They began, however, in 1929 to acquire omnibus services from small owners, and are now providing about 30 per cent. of the total omnibus services.

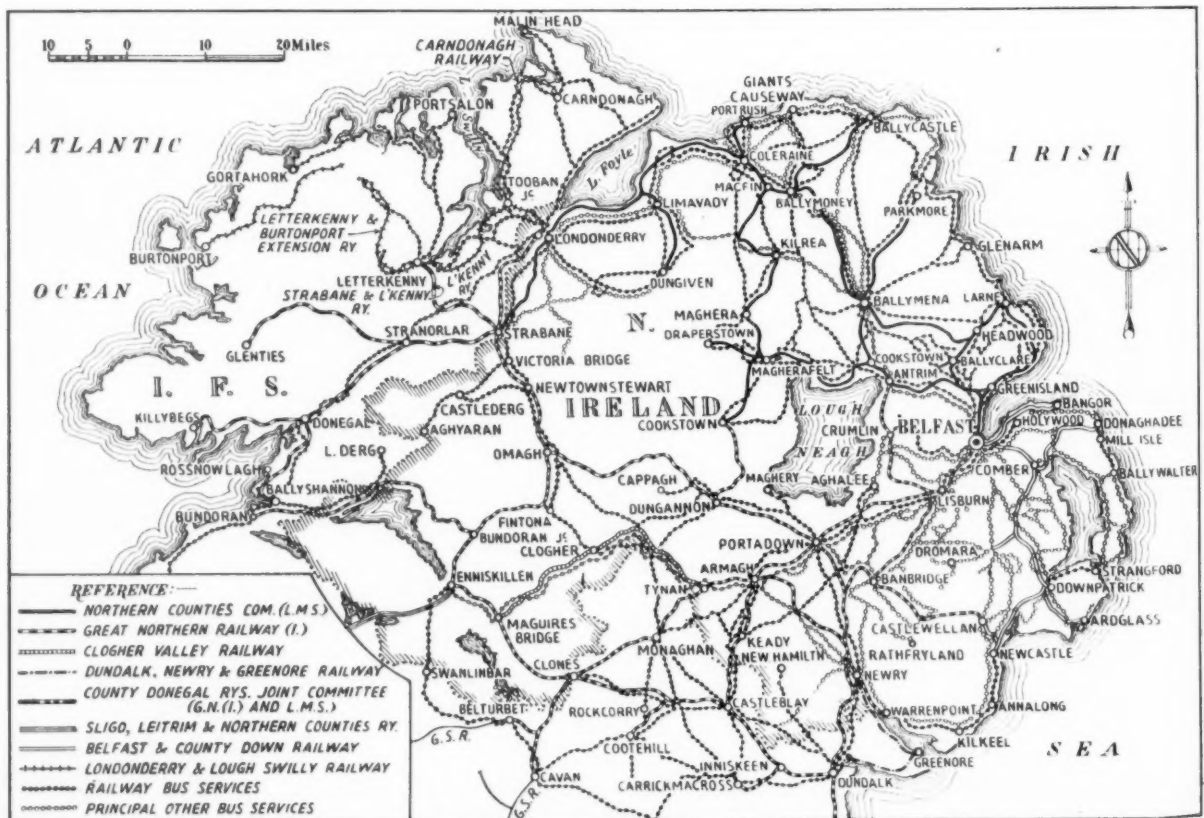
Railway Net Receipts

In view of the growth of road transport, the vast increase in salaries and wages paid by the railways, and the serious trade depression of the recent years, the financial position of the railways has been affected seriously. Net receipts of the Belfast & County Down Railway, for instance, have fallen from £46,797 in 1923 to £6,650 in 1933, total capital expenditure having increased from £1,640,697 to £1,650,351. The Great Northern Railway had in 1923 net receipts of £437,012, but in 1933 suffered a loss on working of £45,826, while its capital expenditure had grown from £10,002,691 to £10,340,609. Net receipts of the Northern Counties Committee were £113,482 in 1923, but for 1933 it incurred a loss of £89,285, and its total capital expenditure had advanced from £3,456,081 to £3,915,395. The 1933 figures of the Great Northern and the Northern Counties

Committee were affected by a strike of railwaymen, which extended from January 31 until April 8. This strike undoubtedly assisted road transport undertakings, and although railway receipts are expected to be greater than in 1933 they are likely to be materially less than for the year 1932. The year 1924 was the last year in which what might be termed "normal dividends" were paid, and the last before competition from road transport became acute. Figures given in the appendices to the report show that since 1924 there has been a general decline in the volume of and receipts from all classes of traffic, and while the shrinkage in volume has been generally not so great in the passenger department as in the goods, the former traffic has become relatively much less remunerative. Competition from the roads has caused passenger fares to be reduced on a scale more marked than the reduction in the case of freight, though the fall in freight receipts is serious. At the time road transport was in its infancy the railways found themselves burdened by post-war conditions of service, in the form of reduced hours of duty and a large increase in their cost of salaries and wages. The total salaries and wages paid for four selected years are shown in the following table:—

1913	356,807
1920	1,406,000
1922	1,074,746
1934 (estimated)	738,960

The railways have exerted themselves to effect reduction of working costs and improvement of services, but, under present conditions, the payment of dividends on the exist-



Map of the railways and chief omnibus systems of Ulster

ing capital structure appears to be an extremely remote possibility.

A brief allusion is made in the report to the proposals of the various companies and public bodies whose representatives attended conferences in Belfast on April 30 and on May 1 and 2.

Regulation and Co-ordination Needed

Further regulation and co-ordination of transport facilities are generally recognised as being necessary. Road transport competition has been checked by the system of control imposed on regular services. The position of road goods transport, however, is very similar to that which existed in the case of passenger transport prior to control. In evidence it was stated: "The railway has to compete with an irregular lorry service, charging uneconomic and varying rates for inwards traffic, and returning with outwards loads at any figure obtainable, regardless of cost of working." Between rail and road undertakings an intensive and bitter warfare is being waged, and there is unjustifiable waste and overlapping of services. Under such conditions there is an apparent present benefit to the public, but this can only be temporary until economic forces bring about a reduction of the facilities. Excessively low charges resulting from intensive competition cannot continue indefinitely.

The invention of the internal combustion engine has revolutionised transport: new facilities have come into existence, almost as startling in their effect as was the development of steam transport in the early years of last century. Transport is a substantial element in the cost of production of any commodity, and, other things being equal, the public are entitled to purchase in the cheapest market. This is a public right, and is usually the practice of railway companies when making purchases in Great Britain of plant and stores. Therefore, provided adequate payment is made by road transport for the use of public roads and that it is properly regulated and controlled, the public cannot be deprived of the advantages of the new form of transport, nor can its development be restricted unduly any more than railway construction was restricted last century. But the Government is responsible for regulation and control of transport in the interests of the community, and should not permit economic waste where, as in road maintenance, public expenditure is involved. The Government is entitled to restrict the use of public roads by commercial vehicles of certain types where all the reasonable needs of the public are met as adequately, cheaply and conveniently (having regard to all the circumstances) by the older as by the newer form of transport, or by a combination of the two systems.

Motor Taxation

In considering whether taxation of road transport is adequate, Sir Felix Pole shows that the taxation of motor vehicles in Northern Ireland is substantially higher than in Great Britain. Omnibuses are taxed at the rate of £2 10s. a seat, and no allowance is made as in Great Britain for vehicles fitted with pneumatic tyres. The rate of taxation of goods vehicles up to five tons unladen weight has been for a considerable time about 25 per cent. higher than in Great Britain, but for vehicles using heavy oil, steam or coal gas, &c., it is lower than the British rate, as the increases imposed by the Imperial Finance Act of 1933 were not applied in Northern Ireland. The Minister of Finance has, however, announced that he proposes to increase the duties on these types of vehicles as from January 1 next. Consequently, no further increase of taxation of road passenger and goods vehicles appears to be desirable.

The recently-passed Motor Vehicles and Road Traffic Act (N.I.), 1934, provides for the licensing of goods vehicles and for the control of hours of work of drivers. Similar provisions as to hours are contained in the Motor Vehicles Act of 1926 with regard to road passenger vehicles.

Regarding the question of co-ordination of transport, Sir Felix Pole is definitely of opinion that if transport by road and rail continues to be conducted on the present unsatisfactory basis, serious results will follow and, at no distant date, the people of Northern Ireland will find themselves in the position of having an inadequate and expensive transport system. While some units operating transport are financially sound, the financial position of the system as a whole is unsatisfactory, and this must have a disastrous reaction on the efficiency of the services. There is an unanswerable case for co-ordination of road and rail services, and it is to this end that Sir Felix Pole's recommendations are directed.

Railway Amalgamation Not Possible

The first solution considered was the creation of a Northern Ireland Transport Board, with power to acquire all existing transport organisations by means of an issue of stock in exchange for the securities of the railway and road companies on the basis of an agreed valuation, or failing agreement, on a basis settled by arbitration. The operation of all railway and road services in Northern Ireland is well within the capacity of a small board of directors and a comparatively small organisation. Amalgamation of the existing railways would be a necessary ingredient in any such scheme. The peculiar circumstances of Northern Ireland, however, constitute very grave obstacles to the constitution of such a Transport Board. Six railways operate partly in Northern Ireland and partly in the Irish Free State. The Londonderry end of the Londonderry & Lough Swilly Railway could not be severed from the remainder of the system. This railway might be excluded from an amalgamation scheme, but it would not be feasible to exclude the Great Northern, which has 332 miles (59 per cent.) in Northern Ireland out of a total of 562 miles. Its headquarters are in Dublin and its works in Dundalk. Great Northern lines cross the boundary fifteen times and there are seven customs stations. It would be possible to divide the Great Northern system between a Northern Ireland Transport Board and the Great Southern Railways, but it would be extraordinarily difficult to assess the value of the respective parts, especially having regard to the financial condition of the whole undertaking. Similarly, it would be possible to allocate the operation of the line, and to institute a pool of the traffic between the two systems in Northern Ireland and the Free State respectively. Further, it is a constitutional question whether the Government of Northern Ireland could compel division of the Great Northern Railway system.

Amalgamation of railways without the Great Northern would, in effect, merely involve the lines of the Northern Counties Committee and the Belfast and County Down Railway, seeing that the L.M.S. owns the Dundalk, Newry and Greenmore, while the Clogher Valley Railway must inevitably be superseded by road transport. Moreover, the Northern Counties Committee has no separate body of shareholders, and any change in its capital structure would involve the capital account of the London Midland & Scottish Railway, and is a matter within the sole discretion of that company. Faced with these difficulties and in the absence of any amalgamation proposals by the railway companies, Sir Felix Pole is unable to advise the Government to promote a scheme involving amalgamation

of railways. Similar considerations rule out the suggestion by the various trade union organisations of a nationalisation of transport, even if from other points of view nationalisation appeared to be desirable.

Alternative possibilities are then considered:—

(1) Transport generally to be left in the hands of existing operators, subject to supervision by a new body vested with drastic powers of control and regulation.

(2) A Northern Ireland Road Transport Board to be constituted to take over all passenger and goods services operated by road transport carriers, and the road services worked by the railway companies in Northern Ireland, including collection and delivery services. This board and the railway companies—or at least the three larger systems—to be required to enter into an agreement for pooling their receipts in Northern Ireland.

As to the first alternative, co-ordination by means of regulation of the very large number of small units which to-day carry on the transport of Northern Ireland, particularly of goods, would be an almost impossible task: there would be innumerable clashes of interests and the work of supervision would be immense and expensive. For these reasons Sir Felix Pole is unable to recommend the first alternative. Effective co-ordination should be secured by some arrangement giving mutual financial interest in the future development of transport facilities.

The railway companies proposed either that road transport should be more heavily taxed and controlled, or that the Government should grant powers to the railway companies to enable them to become the sole providers of public transport in their respective areas. Regarding the last-mentioned proposal, Sir Felix Pole is of opinion that in the absence of any comprehensive scheme embracing amalgamation of railways, closing of branch lines or sections of railway which are no longer commercially justifiable, and the interlocking of railway and road transport, the Government cannot be recommended compulsorily to transfer the road transport undertakings to the respective railway companies. To do so would seem to be comparable to empowering—for example—gas companies compulsorily to acquire electricity companies. Greater control coupled with increased taxation of road vehicles would not bring about the co-ordination of road and rail transport which is essential to secure an efficient system of transport.

Road Transport Board Proposed

The most satisfactory solution of the problem is to be found, in Sir Felix Pole's opinion, in the second of the alternative suggestions above-mentioned. The proposed Road Transport Board should be formed in the first instance by an amalgamation of the larger road transport companies and the road services now operated by the railway companies. The railway companies have a considerable financial interest in the operation of road services as they collectively possess the largest fleet of commercial vehicles in Northern Ireland, operating altogether 207 omnibuses and 103 goods vehicles. They should also be authorised to extend their interest in road transport by investing in the capital of the Road Transport Board. The board should also be empowered to acquire such businesses of the smaller operators as it may deem desirable, the terms of acquisition to be settled by agreement or a small arbitration tribunal which it will be necessary to constitute. To make the road transport organisation complete the services of the Belfast Corporation Tramways and Omnibus Department should be included. Under the Public Service Vehicles (Amendment) (No. 2) Regulations, 1928, effect was given to an agreement between the Government and the Belfast Corporation, whereby the Corporation is recognised as the operating authority responsible for the provision of public means of road

passenger transport within the City, and, where the tramways extend beyond the City boundary, for the area served by such tramway, and a quarter of a mile beyond in each case.

Whereas the industrial depression experienced in recent years has only impeded the development of road transport, it has seriously depleted railway receipts, and the development of road transport also has been largely at the expense of the railway companies. In these circumstances it would not be equitable to base the pooling scheme entirely on the railway receipts for a recent year. Sir Felix Pole suggests that a "standard year" might be compiled by taking a moiety of the receipts of each railway for the years 1924 and 1932, and the receipts of the road transport companies for the year 1932. Should the parties fail to agree to this or to an alternative basis, the matter should be referred for decision to the Amalgamation Tribunal. The pool should embrace the gross traffic receipts, less working costs which vary with the volume of traffic. A Standing Joint Committee composed of an equal number of representatives of railway and road interests might be appointed, on lines similar to that adopted with London Transport, to prepare the scheme and subsequently to review and co-ordinate services, fares, rates, conditions, &c. The foregoing scheme should secure maximum co-ordination of road and rail transport as it will be in the interest of both parties to see that traffic is conveyed in the most economical manner; that wasteful and uneconomic competition is avoided and that improved transport facilities are provided with the object of increasing receipts. Further, all new capital expenditure required for the development of transport should be subject to the approval of the Standing Joint Committee, and the remuneration of such capital should be a first charge upon the receipts of the pool before division between the parties. This should facilitate the raising of capital for development of transport facilities and to enable economies to be effected. For example, the traffic on the Belfast & County Down line to Bangor should respond to a more rapid and frequent service which could be provided by electrifying that railway. Incidentally, this would provide a useful addition to the load of the Corporation of Belfast Electricity Department.

Rates and Fares

At present disputes as to undue preference, facilities, rates, &c., in connection with a railway undertaking fall to be dealt with by the Ministry of Commerce and the Railway & Canal Commission, while omnibus fares are controlled by the Road Transport Fares Tribunal. Administrative supervision and control of road and railway transport should, in Sir Felix Pole's opinion, be exercised in one department of the Government and be the responsibility of one Minister. Subject to a right of appeal to a proposed Transport Appeal Tribunal, absolute responsibility for fixing fares and rates should rest with the railway and road transport organisations. This tribunal would deal with appeals by the public or by railway or road interests, regarding fares, rates, services, conditions of transport, &c., whether by rail or road. It should replace the Railway and Canal Commission and the Road Transport Fares Tribunal, and its procedure should be simple, elastic and expeditious.

No proposals were made by the railway companies regarding such matters as their capital structure; statutory requirements; the form and extent of accounts and statistics; operating costs; closing branch or other sections; introduction of fast railcars; increasing the use of rolling stock to obtain as many loaded journeys per vehicle as are obtained by road hauliers, &c. These have, no doubt, received full consideration. Sir Felix Pole considers, however, that Acts of Parliament which impede the freedom

of railways should be repealed. In particular, the statutory enactment of a classification of goods and of maximum schedules of rates and charges should be abolished, railway companies to be as free in respect of charging powers as are road transport companies, subject to appeal to the Transport Appeal Tribunal. The conditions attaching to de-rating of railways should be repealed, the railway companies to have the benefit of the reduced basis of local taxation, in exactly the same manner as other interests dealt with under the Local Government (Rating and Finance) Act (Northern Ireland), 1929. Railway companies should be relieved entirely from the obligation to maintain the surface of public roads on bridges and the approaches thereto.

The railway companies requested—and it is recommended that they should be granted—powers: (1) to invest funds in and enter into agreements with road transport organisations; (3) to own and operate air services; (3) to purchase their debenture stock at its market value. They have already been granted power to sell or lease superfluous land by the Railways Act (N.I.), 1934.

The proposed Road Transport Board should be a small body, of which the Chairman should be a man of experience in transport work, and the first members should include nominees of the railway companies, the Belfast Omnibus Company, H. M. S. Catherwood Limited, and (it is hoped) the Corporation of the City of Belfast. The Amalgamation Tribunal should be a small expert body

whose duty will be to settle terms of amalgamation or absorption in cases of disagreement. The functions of the Appeal Tribunal would be simply to hear appeals against decisions of the Administrative Department in matters affecting the interests of either branch of the transport industry or of the public. It should be easily accessible and have very simple procedure, but at the same time ample power to discourage appeals of a frivolous character.

The Government of Northern Ireland decided on July 24 to adopt the general principles of Sir Felix Pole's report. In announcing this decision, Sir Dawson Bates, Minister of Home Affairs, said that the only practicable method of achieving the object the Government had in view was to bring the two systems of transport into partnership with a common financial interest. Parliament would therefore be asked to approve a Road Board, Standing Joint Committee, and pooling Scheme as recommended by Sir Felix Pole. The Road Board would absorb all enterprises carrying passengers and goods for hire on the public roads, including road vehicles operated by railway companies, but not taxicabs nor—in default of agreement—the undertaking of the Belfast Corporation. Adequate safeguards were to be provided to ensure reasonable charges and to prevent undue preference. An independent tribunal was also to be set up to which the public could have easy and inexpensive access.

BRUNEL'S TIMBER VIADUCTS

(See illustrations on page 150)

Now that the last of the picturesque viaducts designed by Isambard Kingdom Brunel for the South Devon, Cornwall, and West Cornwall Railway Companies and constructed of kyanised yellow pine has been superseded by a more permanent if less artistic looking structure in masonry, brickwork, and reinforced concrete, it may be fitting to recall some of the general details of this famous type of bridge construction which, despite its slender appearance, not only stood the test of time and the stresses of heavy loading for more than half a century, but added a grace of connecting line from valley to valley which enhanced the beauty of the countryside in a manner delightful to behold and interesting to ponder upon. Brunel had a love for timber and a special genius for artistic design which is exemplified not only in these viaducts but also in the original designs which he submitted in the year 1829 in competition with other engineers—Telford in particular—for the Clifton suspension bridge. Incidentally it may be mentioned that Brunel's original sepia sketches for this suspension bridge are in the possession of the Great Western Railway.

The conformation of the ground in Devon and Cornwall necessitated the construction of 67 viaducts—14 in Devonshire and 53 in Cornwall. Of this number 42 were found necessary on the 65 miles of railway linking Plymouth and Falmouth, while 10 further viaducts connected up the 26 miles between Truro and Penzance. Geographically, the 67 structures were

situated as follows:—On the South Devon main line 7; on the Kingswear, Launceston and Falmouth branches 2, 6, and 8, respectively; while the Cornwall main line needed 34 and the West Cornwall line 10. All but two—those at Rattery and Brent—were of timber. Forty of them varied between 300 and 900 ft. in length; three exceeded 1,000 ft. in length, namely, Truro viaduct 1,026 ft., Walkham viaduct (Launceston branch) 1,096 ft., and Nottar viaduct, on the Cornish main line, 1,120 ft. The remainder were less than 100 ft. in length while the highest—St. Pinnock, also on the Cornish main line—towered 151 ft. above the valley which it spanned.

The large viaducts were similar in design, although they varied in detail. Walkham viaduct, near Horrabridge on the Launceston branch—1,100 ft. long and 131 ft. high—was a typical example of the more matured type for crossing valleys. It comprised 15 spans, each approximately 66 ft. wide, with lesser spans at both ends 59 ft. 6 in. wide, rail level being 132 ft. above the valley. It was constructed on masonry piers to a height of 35 ft. below rail level. Upon the piers iron "shoes" were fixed to take four sets of strutting, radiating fanwise to support the three continuous beams of timber extending along the whole length of the viaduct to carry the decking and the permanent way, timber railings on both sides completing the structure. The permanent way was, of course, at that time the standard longitudinal type carrying broad gauge

bridge rails weighing 72 lb. to the yard. When Walkham viaduct was reconstructed in 1909 the piers were raised in brickwork and a steel superstructure added to carry a double line of rails.

For the crossing of tidal creeks—there are several in the neighbourhood of Plymouth—Brunel relied upon timber piling to form the piers and in lieu of masonry adopted timber trussing to support the superstructure. The usual span of this type was 40 ft., the height ranging from 40 to 100 ft. All the viaducts excepting one were constructed to carry a single line of broad gauge rails. The exception was that erected over Stonehouse Pool, Plymouth, which carried the Cornwall Railway on a double track into Plymouth, Mill Bay, station. Incidentally it may be mentioned that the only section of the main line still remaining with a single line of rails is that over the Royal Albert Bridge, Saltash, another Brunel structure 2,200 ft. long constructed in 1859 at a cost of £225,000.

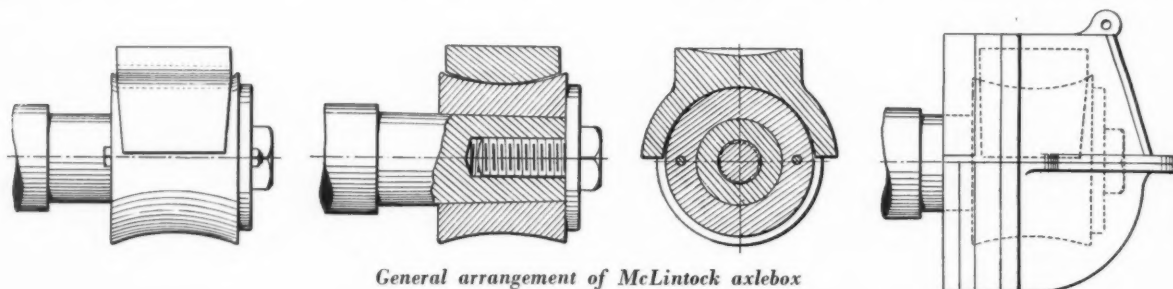
A large scale model on exhibition at Paddington of a portion of Ponsanooth viaduct (Falmouth branch) as erected in 1863 shows in detail the construction of the timber work as used in these structures. A model of Landore viaduct, which was also originally built of timber in 1850 is also to be seen. It had 38 spans totalling 1,738 ft. in length and the height of the main truss was 83 ft. It was reconstructed of steel plate girders on masonry piers in 1887. These models are illustrated on page 150.

LOCOMOTIVE AND ROLLING STOCK BEARINGS

The McIntock radial bearing and axlebox

MUCH thought and ingenuity have been expended in endeavouring to arrive at a standard type of axlebox for locomotives and rolling stock, and one of the ideas formulated is that in a standard box it is desirable that the journal should rotate in a bath of lubricant without the aid of oilers, pads and packing. The shortening of brasses should also be eliminated, and it is suggested by the inventor of the type of axlebox illustrated in the accompanying drawings that such wear is entirely due to the heavy thrust on curves. This opinion is, he

In this design, the slipper or liner is dispensed with and replaced by a radius cast inside the top of the box to correspond with the cross-section radius on the top of the shoe. This is provided for the purpose of dividing the movement between the shoe and journal, also the cross movement between the journal and wagon spring, an arrangement which completely dispenses with the question of corded axles or the necessity of returning the vehicle to the workshop for truing up the axles. Defects in these components can be attended to without withdraw-



General arrangement of McIntock axlebox

states, fully confirmed by the examination of brasses which have been in traffic for a short time and have invariably shown signs of wear and shortening between the fillets of the journal, causing excessive oscillation and vibration, which increase as further wear takes place.

There are other disadvantages which the inventor of this axlebox, Mr. John McIntock, of Glasgow, sets out to remedy. As the heating of boxes usually starts at the end of the journal, it is reasonable to suggest that the bearing surface of the bush on the collar fillet is not sufficient to withstand the big stress or thrust load when taking curves, and this surface should be increased to withstand the strain as well as to reduce excessive flange friction. The inventor claims that the careful design of the bearing and axlebox makes the unit suitable for all types of traffic, both fast and slow. The brasses and fittings are interchangeable, thus reducing the number of sizes of bushes, dispensing with liners and effecting considerable economies.

The drawings show the general construction of the McIntock axlebox. The journal is given a slight taper to correspond with the tapered concave sleeve which, when in position, is fixed by screwing up the loose collar. The concave sleeve is made to a standard size and can be adjusted to fit all classes of axles. The bush is of gun-metal and takes the form of a shoe. It is convex and is machined to fit the concave sleeve, with a small clearance to permit of a slight movement of the shoe from the centre of the journal when the thrust stress comes on the bearing. When taking curves, the bearing surface is increased to withstand and distribute the thrust load over a greater area. A point of importance is that no matter what position the axle is in when taking a radius, the shoe, even if out of centre, is always running on a true bearing, the movement allowed for being a slight deviation from the centre of the journal. Immediately the axle is relieved from the thrust load, as in rounding a curve, the shoe returns to the centre. It will be seen that as there is no collar or fillet for the shoe to revolve against, shortening of the bush cannot possibly happen.

ing the vehicle from traffic or involving the transference of the load from one vehicle to another.

Examination of the drawing will show that the sides of the upper bearing do not correspond exactly to the sides of the tapered concave sleeve or bearing wheel, the opposite sides of the half bearing tapering towards each other from the longitudinal centre lines of the bearing to the extremity thereof. The design, it is submitted, takes into account many movements and shocks that occur in railway vehicles running at high speed, and it is also claimed that with the additional bearing surface at the journal end to take up thrust over a larger area, flange thrust will be greatly minimised. The thrust being taken on a concave surface causes the load to be diverted with a pendulum motion instead of laterally as at present, thus avoiding a direct shock or blow on the collar of the axle. The box may be designed for oil or grease lubrication, no pads or other auxiliaries being required for the conveyance of the lubricant to the journal. The design is submitted in principle to railway and other engineers, and can be modified to suit requirements and conditions, as occasion demands.

THE TRAINING OF BUSINESS EXECUTIVES. — Since the training of the business executives of the future is a matter of great national concern, it is important to learn that success has attended the University Scheme which was inaugurated last year by the Department of Business Administration, London School of Economics, for the recruiting of trained men for business with the backing of nationally known firms. This development provides a new bridge between business and the universities and enables firms to recruit graduates whose education has been supplemented by training in business principles and methods. Its success during the past year has led to its continuance and extension, and this summer a number of outstanding firms are offering about a dozen appointments to University graduates selected by them and approved by the Department on condition that they attend the Department's special course of business training during the coming academic year, which opens in October next.

MORE TOURIST TRAINS FOR THE L.N.E.R.

Success of new type introduced last year has led to the building of further trains for this year's traffic

IN order to cope with the heavy holiday and excursion traffic during the summer season, the London & North Eastern Railway is putting into service four new sets of four-car tourist trains of the type first introduced by Mr. H. N. Gresley last year, and described in our issue for July 28, 1933. Each set consists of a brake-third, two twin articulated third class vehicles, and a buffet car, with a total seating capacity of 276 (exclusive of 24 seats in the buffet). The tare weight of a complete set is $171\frac{1}{2}$ tons, and the weight of the passenger carrying portion, $138\frac{1}{2}$ tons, is equivalent to 1,120 lb. per seat. Normally two sets will be run as one train, with a seating capacity of 552.

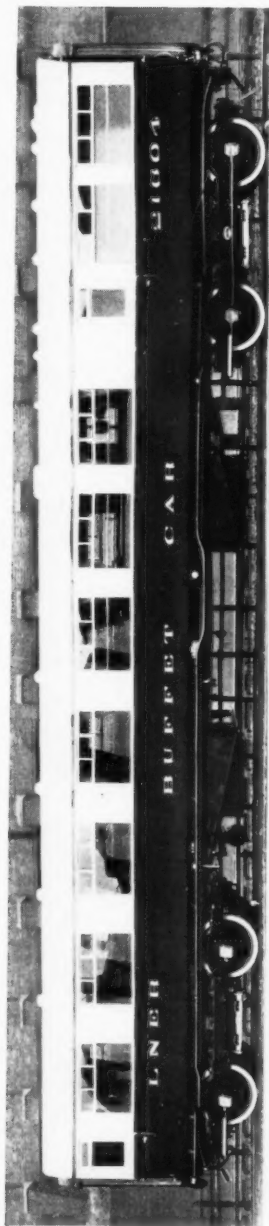
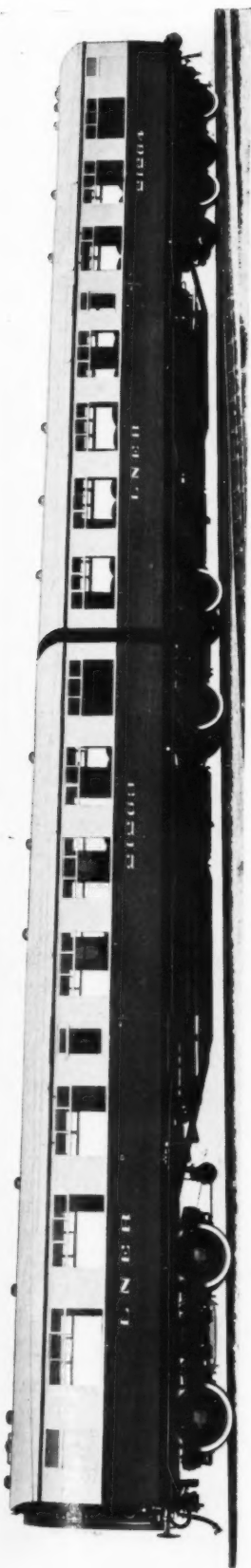
The eight twin articulated cars have been built by the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd., and the four brake-thirds and four buffet cars by the Birmingham Railway Carriage & Wagon Co. Ltd., both of which firms participated in the construction of the five trains of similar design which were delivered last year. Compared with the latter vehicles the new units differ only in small details, principally in the sliding lights above the windows, which are 3 in. deeper than before, in the interior colour schemes, and in the heating equipment.

Rexine covers the interior walls and ceilings throughout the train, and is also used for the blinds, but the colour scheme varies in the different vehicles. In the articulated sets, one coach has brown Rexine up to the waist line with a lighter shade of brown above, and a cream ceiling; the other coach is in antique green below the waist rail and Stipplex grey above, with an ivory ceiling. The lower part of the third-brake is lined in dark blue Rexine and the upper part in silver-blue; two of the buffet cars are lined in blue and gold Rexine and two in blue and silver. In the buffet car, Rexine lining is also extended to the front of the counter.

As in the earlier trains of this type, the body panelling is of plywood on teak framing, and the panels and Alpax window frames are bedded in a chemical adhesive before finally being screwed into position. The ceilings are of Agasote millboard supported on angle roofsticks. The floors are bolted directly to the steel underframe without the interposition of rubber cushions, and are covered with cork lino of a colour to match the walls, except in the buffet car, where the floor is covered with blue Korkoid.

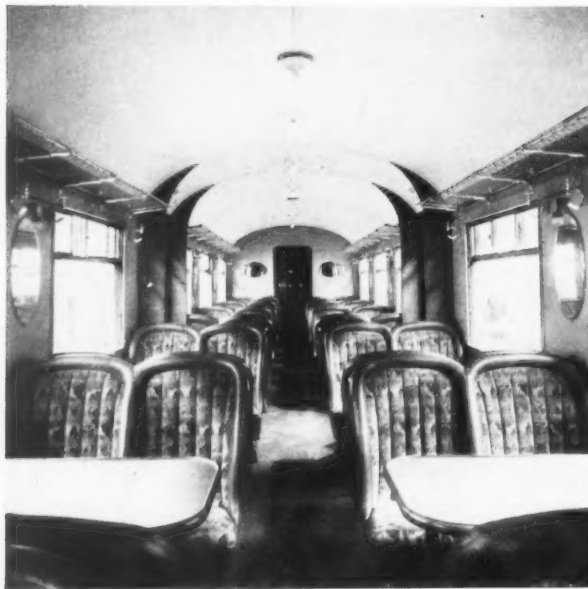
Movable chairs, made by Pels Limited, with chromium-plated tubular steel frames and Rexine upholstery are fitted in the buffet car, and the tables are of the same construction, but with a top covering of black Korkoid. The semi-bucket seat design of last year's trains has been retained in the passenger saloons. The seats are mounted on Alpax legs, upholstered in Holdsworth's moquette supported on Vito spring fillings, and have Dunlop rubber edging rolls. The interior fittings of the coaches are of chromium-plated bronze. Two lavatories are arranged at one end of each passenger saloon, and have walls and ceiling covered in Rexine and the floor with Korkoid. Hot and cold water apparatus is fitted to all wash basins.

A refreshment counter is situated at one end of the buffet car saloon, and behind this is a small kitchen which contains storage cupboards, sinks, a grill and gas ring, and an electric refrigerator built by the British Automatic



Above: One of the new twin articulated third class coaches on the L.N.E.R.

Right: Buffet car for use in third class tourist trains



Interior of third class tourist train, L.N.E.R., showing semi-bucket seats

Refrigerator Co. Ltd. Tea and coffee are provided at the refreshment counter by Still's automatic boiler, and the gas for this and for the kitchen equipment is obtained from four cylindrical reservoirs mounted beneath the underframe.

Steam heating, with fittings by A. G. Wild & Co. Ltd., is fitted to the buffet car, but for the rest of the train Stone's combined ventilating and steam heating system is used. This apparatus consists of a blower which draws in air through a filter box, blows it through a steam heater, and down ducts along the side of the carriage floor from which it emerges through gratings. The action of the heater is thermostatically controlled. Stone's double-battery electric lighting equipment is embodied, and the

main saloons are lit by a 40-watt roof lamp in each eight-seat section, and a 15-watt lamp above each side mirror. A dynamo is slung from the underframe and driven by a belt from one axle on each car.

The underframes are of steel with centre longitudinals of channel section and solebars of bulb angle. Buckeye centre couplers, made by A. G. Wild & Co. Ltd., and the Laycock Engineering Co. Ltd., are fitted at the ends, along with adjustable side buffers, and are provided with Spencer-Moulton rubber springs. The bogies are of the standard L.N.E.R. compound-bolster type with a wheelbase of 8 ft. 6 in., and pitched at 43 ft. centres in the buffet cars and brake-thirds, and 43 ft. 3½ in. in the articulated units. The vehicles are connected by standard vestibules, and the overall length of a four-car set is 234 ft. 1 in., the nominal body width 8 ft. 11¾ in., and the maximum width over the handles 9 ft. 3 in. The exterior of the body is painted in green up to the waist rail, cream from there up to the cantrail, and white over the roof.

Among the manufacturers whose products have been used in these trains are the following:—

Rexine lining for interior ..	I.C.I. (Rexine) Limited.
Plywood	Saunders-Roe Limited
	Flexo Plywood Industries Limited.
Korkoid flooring in buffet car	Korkoid Company
Bucket seats	Metropolitan - Cammell - Weymann
	Motor Bodies Limited
Bucket seat springs ..	Vi-Spring Products Limited
Bucket seat back and end	
rolls	Dunlop Rubber Co. Ltd.
Bucket seat legs and window	
frames	Lightalloys Limited
Bucket seat upholstery ..	John Holdsworth & Co. Ltd.
Sliding ventilator and interior	
fittings	J. Beresford & Son Ltd.
Side door locks	Joseph Kaye & Sons
Buffet equipment	W. M. Still & Co. Ltd.
Refrigerator	British Automatic Refrigerator Co. Ltd.
Agasote ceiling panels ..	G. D. Peters & Co. Ltd.
Electric lighting equipment,	
heating and ventilating	
apparatus	J. Stone & Co. Ltd.
Auxiliary rubber bearing and	
drawgear springs, vestibule	
gangways	Geo. Spencer, Moulton & Co. Ltd.
Vacuum brake equipment ..	Vacuum Brake Co. Ltd.

NEW MAIN LINE COACHING STOCK, L.M.S.R.

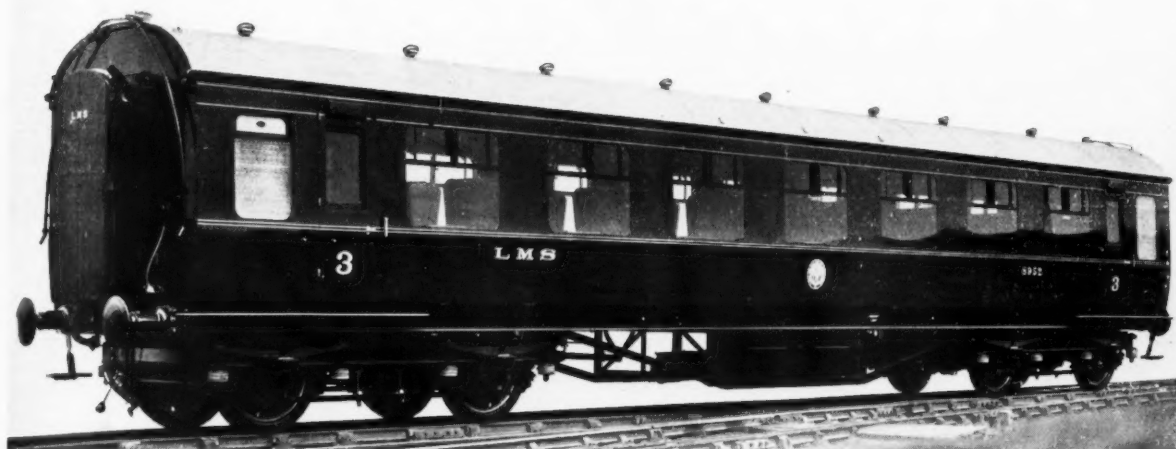
Over a hundred semi-steel vehicles with standard bogies and 57-ft. underframes are in course of delivery by contractors

As we recorded in our issue of February 2, the L.M.S.R. in January last placed orders for 120 open type vestibuled third class carriages, and most of these have now been delivered. The appearance and layout of the 100 third class coaches, 50 of which have been built by the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd., and 50 by the Birmingham Railway Carriage & Wagon Co. Ltd., are shown in the accompanying illustrations. The remaining 20 vehicles are vestibule third class brakes, and have been constructed by R. Y. Pickering & Co. Ltd., of Wishaw.

The bogies are of the L.M.S.R. standard type with a wheelbase of 9 ft., and are identical with those illustrated in detail when describing the new Wolverton-built compartment stock in THE RAILWAY GAZETTE for May 4 last. Similar remarks apply to the steel underframes, except that the length over the headstocks is 57 ft. in place of 60 ft. The bogie centre pitch has been reduced from

43 ft. 6 in. to 40 ft. 6 in., but from the pivots to the headstocks the underframes of both classes are the same, and incorporate duplicate buffing and drawgear. The buffing shocks are taken up through Spencer-Moulton rubber springs bearing on steel castings. The main sills and solebars are of 10 in. by 3½ in. channel sections, of which only the solebars are trussed, and the underframe ends are very strongly braced by steel sections and castings to reduce the risk of telescoping in case of collision.

Teak has been used for the body framing, Borneo white mahogany for the bottom sides and cantrails, and jarrah for the floor bearers. The external panelling is of Lysaght's and Baldwin's steel sheet, arranged to give a flush finish, the window glass being bedded up to the panels. The roof panels are of 16 s.w.g. galvanised steel, and the body side and end sheets are of the same thickness, but are of steel with a charcoal finish. The flooring consists of 24 s.w.g. galvanised steel sheets under the floorboards,



General view of one of the 100 third class open type carriages now being put into service on the L.M.S.R.

and a layer of felt and a layer of lino. above. To minimise the track and running noises, rubber pads are inserted between the underframe and the floorboards. The floor of the luggage compartment in the brake thirds is covered with Decolite. The side pillars are secured to the cantrails and bottom sides by pressed steel knees bolted to the respective members, and the bottom sides, pillars, rails and roofsticks are bored or grooved to allow of a circulation of air between the steel panels and the inside linings, in order to eliminate as far as possible the risk of condensation.

Above each window is a sliding extractor light, which, by moving along inside the panels, preserves the flush appearance of the fixed window below. The sliding light is of the deep type standard for new main-line stock on the L.M.S.R., and consists of two lights opening in

opposite directions. Further ventilation is provided by Ashanco extractors in the roof.

The interior panelling generally is of plywood with a plain mahogany veneer. The cross partitions and seat ends are of this material, but of the laminated type used in large quantities by the L.M.S.R. for corridor partitions. Each third class carriage has a smoking and a non-smoking saloon with a carpet runner down the centre and a sliding door between. Entrance and exit are made through end doors fitted with drop lights. The seats, with tables between, are arranged in pairs down each side, and are upholstered in moquette with fillings by the Lace Web Spring Co. Ltd. A Bakelite ash-tray is fitted on each table, and alongside, on the window ledge, is a push button wired up to connect to the dining car.

In an endeavour to stop passengers bringing heavy



Interior of third class carriage built by the Metropolitan-Cammell Carriage, Wagon & Finance Co. Ltd.



Interior of third class carriage built by the Birmingham Railway Carriage & Wagon Co. Ltd.

luggage into the saloons, commodious shelves are fitted adjacent to the doors at each end of the third-class vehicles. Opposite each set of shelves is a lavatory with a large obscure glass window, and containing a folding basin with hot and cold water supplies. The hot water is obtained from a Westinghouse heater, and the water tank is in the roof and cased on the underside to form a flat ceiling. Tanks and hoppers were made by John Levick Limited. Pipe connections to the two tanks run along the roof, and to enable these tanks to be replenished from the platform or the track, a lead is taken down both sides of the carriage end, forming, on one side, a handrail for use when ascending to the roof. Connection between the carriages is made by the standard type of overslung gangway.

Electric lighting on the L.M.S.R. standard system is provided, and consists of a variable-speed dynamo driven from one axle, a single lead-type battery of 250 amp. hr. capacity, (mounted on the truss frame), and a regulator which controls the dynamo output, governs the lamp voltage, and regulates the charge to the battery. In the 120 coaches under consideration, 70 sets of lighting equipment have been supplied by J. Stone & Co. Ltd., and 50 sets by Vickers Train Lighting Co. Ltd. The saloons are lighted by lamps along the centre of the roof only, the non-smoking saloon, which is 18 ft. 9 in. long, having two double lights, and the non-smoking saloon, with a

length of 25 ft., two triple lights. A soft diffused effect is obtained by the use of Nacrolaque shades having an opaque surface. Steam heating on the Westinghouse system is embodied, and four control handles, operating through Bowden wires are fitted in each saloon, and control the action of the adjacent heaters.

The principal dimensions of the third class coaches are as follow:—

Length over headstocks	57 ft. 0 in.
Length over buffers	60 " 8 "
Width over body	9 " 0 "
Pitch of bogies	40 " 6 "
Bogie wheelbase	9 " 0 "
Wheel diameter	3 " 7½ "
Tare weight	30 tons 8 cwt.
Seating capacity	56 third class

Braking is on the automatic vacuum system with two 18-in. cylinders slung from the underframe, and these together with the remainder of the brake equipment were supplied to L.M.S.R. standards by the Consolidated Brake & Engineering Co. Ltd. for the Birmingham cars and by the Westinghouse Brake & Saxby Signal Co. Ltd. for the Metropolitan-Cammell cars. The coaches, which are painted in the standard dark red colour of the London Midland & Scottish Railway, and lined with yellow, were constructed throughout to the specifications and requirements of Mr. W. A. Stanier, the Chief Mechanical Engineer of the L.M.S.R.

AN IMPROVED MAGNETIC CRACK DETECTOR FOR RAILWAY AXLES

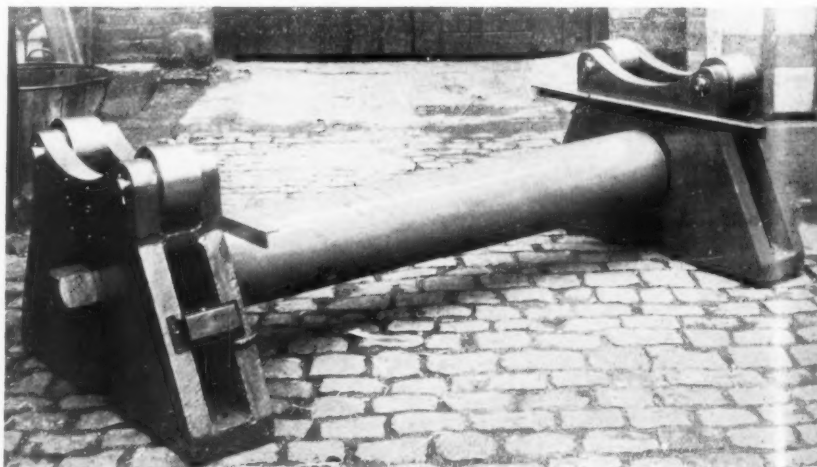
An appliance by means of which axles can be rapidly tested

WE illustrate herewith an interesting appliance for detecting cracks in railway axles, which has been developed by the Equipment & Engineering Co. Ltd., London, and is known as the KA model crack detector. With previous types for railway axles, it has been necessary either to lift the axle complete with wheels by means of a crane and place it on the detector, or to place the latter on an hydraulic or pneumatic hoist set in a pit, for the purpose of lifting the detector and axle clear of the rails, so that the wheels could be rotated during the test. This not only caused delay in testing but made the equipment somewhat expensive. The new model has been devised to overcome these objections and to provide a unit which will allow for the systematic inspection of axles in quantities as required in wheel and axle shops of railway depots.

The KA model crack detector is itself placed in a pit formed under the rail track at right angles to the rails. The rollers on the end limbs of the magnetic poles are so placed between gaps in the rails that they receive the treads of the tyres. When in position the axle and wheels can be easily turned during the examination for fractures. The magnetic current is caused to pass up through the wheel spokes and hubs to the axle and then to flow through the latter to the opposite end. It is further assisted by upward projecting columns at each end towards the ends of the journal portion, thus allowing the overhang of the

axle to be tested. In order to adapt this magnetic crack detector for testing axles having different diameters of wheels, small extension blocks are placed on the summits of the columns, which can be removed when necessary.

The crack detector is made in various gauge sizes and is governed by the Equipment & Engineering Company's patented method of potentiometer control which, together with the necessary apparatus and instruments, is mounted on a convenient adjacent wall. Recent installations include appliances for the Antofagasta (Chili) & Bolivia Railway, the Antwerp tramways, and the Hong Kong tramways.



KA model magnetic crack detector

REBUILT P.O. EXPRESS LOCOMOTIVES FOR THE NORD



FOLLOWING the highly successful performance of the rebuilt Paris-Orleans Pacific locomotives, of which we have given illustrated descriptions in previous issues of *THE RAILWAY GAZETTE*,* the Chemin de Fer du Nord has recently taken delivery of twenty of the same type, rebuilt at the Tours workshops of the Paris-Orleans Company. The principal dimensions are as follow:—

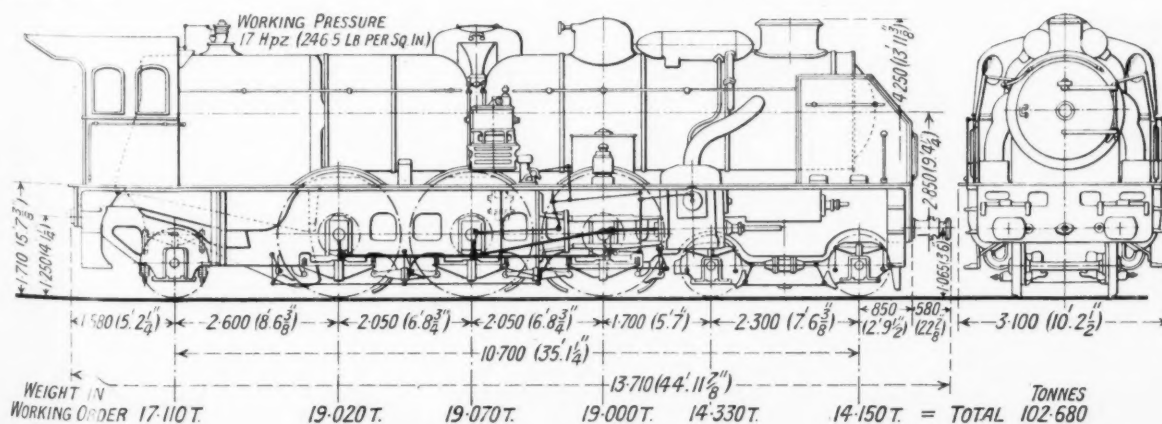
Cylinders—	
Diameter, high-pressure ..	420 mm. (16½ in.)
low-pressure ..	640 mm. (25½ in.)
Stroke, high-pressure ..	650 mm. (25½ in.)
low-pressure ..	650 mm. (25½ in.)
Coupled wheels, diameter ..	1·950 m. (6 ft. 4½ in.)
Bogie wheel, diameter ..	0·960 m. (3 ft. 1½ in.)
Bissel wheels, diameter ..	1·150 m. (3 ft. 9½ in.)
Boiler working pressure ..	17 hectopièzes (246 lb. per sq. in.)
Pressure in intermediate receiver ..	6 kg. per sq. cm. (87 lb. per sq. in.)
Boiler internal diameter ..	1·680 m. (5 ft. 6 in.)
Distance between tube plates ..	5·900 m. (19 ft. 4 in.)
Boiler heating surface—	
Tubes ..	180·62 sq. m. (1,943 sq. ft.)
Firebox ..	15·245 sq. m. (164 sq. ft.)
Nicholson Thermic Syphon ..	2·465 sq. m. (27 sq. ft.)
	198·330 sq. m. (2,134 sq. ft.)
Superheater ..	80·000 sq. m. (861 sq. ft.)
Total ..	278·330 sq. m. (2,995 sq. ft.)
Grate area ..	4·33 sq. m. (46½ sq. ft.)
Tractive effort—	
Compound ..	15,530 kg. (34,244 lb.)
Direct admission ..	18,530 kg. (40,859 lb.)

In our issue of September 1, 1933 (page 319), we gave some details of comparative trials of express locomotives on the main line of the Nord, in which the rebuilt P.O.

Pacific type showed up to great advantage, and it was no doubt due to the influence of these trials, as well as to the fact that owing to the progressive extension of main line electrification on the P.O. Railway rendering surplus a number of express steam locomotives, that the 20 locomotives mentioned above were acquired by the Nord. The principal modifications effected in rebuilding are: (1) fitting the firebox, which has been renewed in steel, with a Nicholson Thermic Syphon, to improve circulation and add to the firebox heating surface as well as to form a centre support for the brick arch; (2) the fitting of a large Houlet type superheater assuring a high degree of superheat; (3) very large direct steam passages; (4) the provision of new cylinders fitted with O.C. poppet valves actuated by Walschaerts valve gear, and having very large ports and passages in order to eliminate wire drawing, and facilitate the steam flow between the high-pressure and the low-pressure cylinders; (5) exhaust by means of K.C. double blast pipes by which back pressure is minimised and the draught improved. The new equipment includes A.C.F.I. feed water heaters.

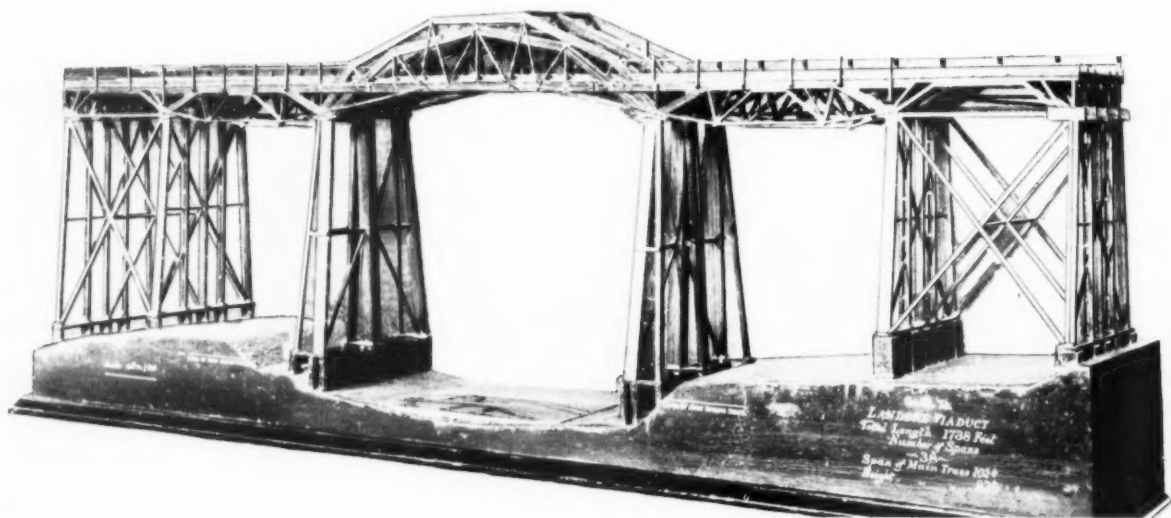
Four sets of valve motion are used. The poppet valves are 7½ in. diameter for both admission and exhaust for the high-pressure cylinders; for the low-pressure the admission valves are 8½ in. and the exhaust 9 in. One of the rebuilt P.O. locomotives on trial has achieved an output of 2,200 d.b.h.p., and their running since the first of the series was converted about four years ago has been consistently good. It is understood that they are economical in maintenance, as well as in coal and water consumption. In the tests on the Nord main line referred to above, the fuel consumption with fast stopping trains of about 650 tons behind the tender worked out at only 3·01 lb. per d.b.h.p. hr. The series on the Nord is numbered 3.1171 to 3.1190.

* May 8, 1931, page 705; April 8, 1932, page 524, and July 14 1933, page 48.

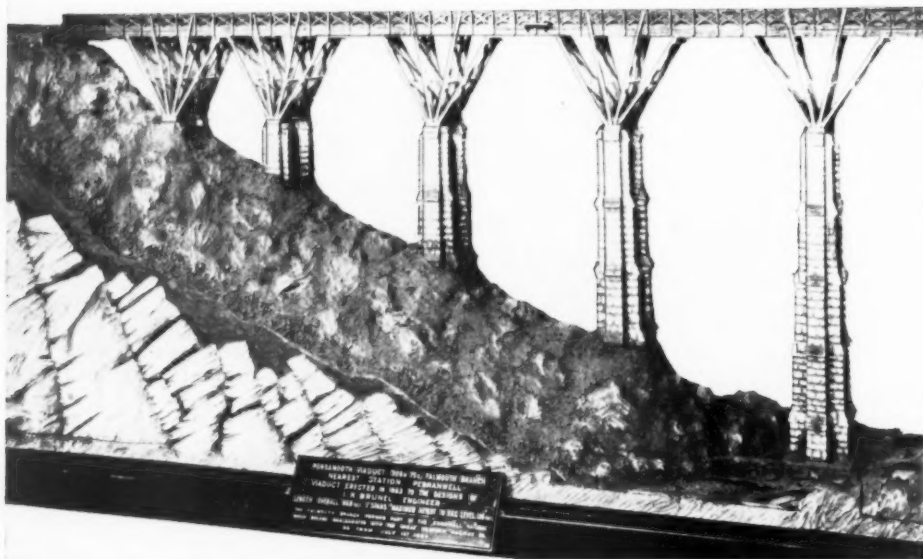


Brunel's Timber Viaducts

(See also article on page 143)



Above: Model of the original Landore viaduct, 1,738 ft. overall, showing the form of construction



Left: Model of portion of Ponsanooth viaduct, 658 ft. long, showing Brunel's method of constructing the masonry piers and the timber strutting. This type was designed for crossing the valleys in Devon and Cornwall

Below: The Walkham viaduct, on the Tavistock branch, before its reconstruction



RAILWAY NEWS SECTION

PERSONAL

CENTRAL ARGENTINE APPOINTMENTS

In addition to the transference to London of Mr. C. E. W. Duley, Assistant to the General Manager, who, as recorded in last week's issue, is to take up the position of Assistant to the Secretary on September 1, the following appointments effective from July 1 have been made by the Directors:—

Mr. Arthur Sylvester Matthews, to be Assistant to the General Manager in Argentina.

Mr. G. Cocolis, London Chief Accountant, to be Assistant Secretary and Chief Accountant in London.

We regret to record the death at his home in Sheffield on July 12 of Mr. Fred Bland, for many years well-known as Director of Trackwork, Edgar Allen & Co. Ltd. Mr. Bland, who was 74 years of age, was apprenticed in 1874 to the steel industry with the old firm of Askham Bros. & Renton, afterwards known as Askham Bros. & Wilson. In 1903 this firm was merged with Edgar Allen & Co., and Mr. Bland continued with that company until his retirement on June 30, 1933, as recorded on page 887 of our issue of that date. Mr. Bland was a specialist in tramway trackwork and was an authority on the design and manufacture of points and crossings. He was a keen student of the early history of permanent way and wrote many articles on the subject, as well as two booklets, "A Century of Permanent Way" and "Tramway Evolution." His last article, entitled "The Genesis of Permanent Way," was specially written for the Jubilee Souvenir of the Permanent Way Institution published by our monthly associated journal, *The Railway Engineer*. Mr. Bland was a Fellow and Gold Medallist of the Permanent Way Institution, a member of the Institution of Mechanical Engineers, a member of the British Standards Institute, and a Fellow of the Royal Society of Arts. His funeral took place on Monday, July 16, in Fulwood Churchyard, Sheffield, and at his express wish the coffin was borne by foremen and workmen from the Trackwork Department of Edgar Allen & Co.

Mr. K. J. McNeill has been appointed to officiate as Deputy Traffic Manager (General), Great Indian Peninsula Railway, as from April 9.

We reproduce below a portrait of Mr. J. A. Ellis, the new Commissioner of the Western Australian Government Railways, who assumed office at the beginning of the present year in succession to Mr. E. A. Evans. Mr. Ellis was born at Workington, Cumberland, on August 16, 1887, and was educated at St. Cleopas School, the Central Technical College, Liverpool, and



Mr. J. A. Ellis, A.M.Inst.C.E., M.I.E.A.,
Commissioner of Railways, Western Australia

Liverpool University. He began his business career with Holme & King Ltd., Liverpool, railway and public works contractors, and there attracted the attention of the manager, who secured for Mr. Ellis a technical school scholarship. He was then appointed junior assistant engineer on the staff of his old firm, and, as such, was associated with the construction of railways and docks at Garston for the L.N.W.R. He went to Australia in 1910 and joined the staff of the Queensland Railways on the day he landed. In the following sixteen years he occupied the posts of Assistant Maintenance Engineer, Resident Engineer, Senior Designing Engineer, and also acted as Bridge Engineer for a period. During his service on the Queensland

lines he carried out the following works: deviations and high level bridges over the Comet and Nogoa Rivers in Central Queensland and the Johnstone River in North Queensland; bridges over the Mary River at Antigua, Graham's Creek, and the Burnett, Kolan, and Boyne Rivers. He was also responsible for the building of three new lines, namely, Cheepie-Quilpie, Murgon-Proston, and Orallo-Injune. For his work in connection with the design and construction of the Johnstone River high level bridge Mr. Ellis was congratulated and rewarded by the Queensland Government. The completion of this bridge forged the last link in the 4,500 miles of line which give a continuous railway journey from Cairns to Perth. In 1926 he took charge of the Railway Construction Branch of the Public Works Department, Western Australia, and four years later that branch was transferred to the Railways Department. Between 1926 and his appointment as Commissioner Mr. Ellis planned and supervised over 600 miles of new railway, a work which involved the expenditure of approximately £3,000,000. He is keen on the educational side of his profession, and has lectured on engineering subjects at the Universities of Queensland and Western Australia. He was elected Chairman of the Perth Division of the Institute of Engineers, Australia, in 1931, and is one of the Western Australian representatives on the Federal Council of that body. For the past six years he has served as a member of the Railway Advisory Board.

LUNCHEON TO MR. CYRIL DASHWOOD

In honour of his appointment as Assistant General Manager, Great Western Railway, a luncheon was given to Mr. Cyril R. Dashwood at the Langham Hotel last week. This gathering was of no particular business significance, because it merely indicated a desire on the part of those participating to show their appreciation of an old friend. The numbers were, therefore, limited to forty in order that this spirit of intimacy might be maintained, and all formality avoided. The organisers of the luncheon were fortunate in securing the support of Mr. Bassett-Lowke, of the well-known firm of model makers, and a miniature Great Western train careered at speed round the luncheon table at intervals. Another feature of the table decora-

tions was the "train indicator" of the "Dashwood Flyer," which marked the guest of honour's arrival at various stations in his career. As many of those present were associated with shipping, in the centre of the four-square table was a miniature sea, on which floated a water-line model of a steamer belonging to the fleet of every steamship company represented.

Those present included:—

Messrs. C. Bartlett (Charles Bartlett & Son), C. Bostock (Pickfords Limited), S. G. Catt (Pinchin & Johnson Limited), G. Clark (Cunard Line), Victor Console (The Daily Mail), Percy Dashwood (Rigby Battcock Limited), Harold Drakeford (Nederland Royal Mail Line), H. G. Dring (Canadian Pacific Railway), W. G. Elliott (Pickfords Limited), F. Gooding (London Press Exchange), A. B. Gladwell (John Cochrane & Sons Ltd.), K. W. C. Grand (G.W.R.), F. H. Grosvenor (P. & O. Line), H. Hobson (Hobson & Sons), H. S. Hodges (Thomas Tilling Limited), Walter Hinde (Thos. Cook & Son Ltd.), E. H. Hull (The Daily Herald), E. Huskisson (Thos. Cook & Son Ltd.), S. H. James (Pickfords Limited), J. A. Kay (The Railway Gazette), W. Livesey (Southern Railway), D. Mackinnon (Royal Mail Lines), T. Marsden Smith (Royal Mail Lines), J. Marshall (The Daily Mail), J. Matthews (G.W.R.), J. A. Milligan (L.M.S.R.), L. E. Moore (United States Lines), Harold Moxon (Moxon, Salt & Co.), R. H. Nicholls (late G.W.R.), G. E. Orton (G.W.R.), W. Pontin (Raymond & Whitcomb Company), J. Popham (J. & A. Seligman & Pearson), F. R. Potter (L.W.R.), T. J. Potter (Travellers' Insurance Association), G. C. Rhodes (French Line), Fred. Saunders (Raymond & Whitcomb Company), H. J. Snook (G.W.R.), R. St. John (Daimler Hire Limited), R. Thornberry (Allied Newspapers Limited), W. S. White (South Wales Echo).

Following the luncheon there were a few impromptu speeches.

Mr. Donald Mackinnon occupied the chair, being faced in the vice-chair by Mr. H. G. Dring, both of whom paid a warm tribute to the character and ability of the guest. These sentiments were warmly supported in turn by Mr.

J. A. Milligan, as representing the other railways, Mr. F. H. Grosvenor and Mr. G. Clark representing the British steamship companies, Mr. G. C. Rhodes the foreign lines, Mr. E. Huskisson the travel agents, Mr. T. J. Potter for "The Press," and later, Mr. Frank Potter, on behalf of Mr. Dashwood's old colleagues, paid a sterling tribute to the guest of honour.

Mr. Cyril Dashwood, in replying, said that he was much touched by the manifestations of good feeling towards him, which had given rise to the luncheon. Any small success he had achieved had only been attained with the support of loyal and friendly colleagues and friends, and the greater task he was now called upon to fulfil appeared easier when he saw how much good feeling was evinced towards him.

INSTITUTE OF TRANSPORT EXAMINATIONS

The Institute examinations were held in April, 1934, at London, Birmingham, Bristol, Edinburgh, Leeds, and Manchester; also in Argentina at Buenos Aires, in New South Wales at Sydney, and in South Africa at Beira, Bulawayo, Durban, Johannesburg, and Port Elizabeth. The names of the successful railway-associated candidates and of the undertakings with which they are engaged, are:—

ASSOCIATE MEMBERSHIP EXAMINATION

Parts I and II—Class II.—H. Aldcroft, L.M.S.R.; E. E. Askins, L.P.T.B.; E. H. R. Clarke, Rhodesia Railways; J. R. F. Gibson, Pickfords Limited; W. J. Hartnell, G.W.R.; C. A. V. Johnson, L.P.T.B.; W. Price, L.M.S.R.; W. Rothwell, L.M.S.R.; J. L. S. Stoneman, L.N.E.R.; E. A. Toneri, Southern Railway;

J. R. Turk, Southern Railway; E. Tyler, L.N.E.R.; J. W. Whittaker, L.M.S.R.; A. C. Wren, Buenos Ayres & Pacific Railway.

Class III.—L. C. Barron, G.W.R.; A. E. Clark, L.P.T.B.; W. O. Foot, Southern Railway; F. Foulds, L.M.S.R.; J. S. Furphy, Birmingham & Midland Motor Omnibus Co. Ltd.; J. Glover, L.M.S.R.; C. R. Grant, L.P.T.B.; N. Nicholls, L.M.S.R.; J. Quick, Rhodesia Railways; A. G. Thomas, G.W.R.; F. W. Watts, L.M.S.R.; R. Whatling, L.M.S.R.

Part I only.—O. Aiken, L.M.S.R.; C. R. Bennett, L.M.S.R.; W. H. Brassington, L.M.S.R.; G. T. Dann, Southern Railway; W. Foulkes, L.M.S.R.; N. E. Goodhead, L.M.S.R.; C. R. Harder, Southern Railway; R. A. Harrison, Southern Railway; T. G. Jones, L.M.S.R.; R. B. Lewis, G.W.R.; J. Maltman, L.N.E.R.; W. F. Peakall, Southern Railway; E. A. C. Player, L.M.S.R.; W. R. Ritchie, New South Wales Government Railways; R. Rogers, Trent Motor Traction Co. Ltd.; L. S. Sherwood, L.M.S.R.; F. Shutt, L.M.S.R.; C. H. Swanutt, G.W.R.; H. C. L. Trickett, Southern Railway; J. A. R. Turner, Southern Railway; R. G. Vaux, G.W.R.; W. J. Wilford, G.W.R.

The undernamed candidate, who has also passed the Associate Membership examination, had been granted exemption in certain subjects of the examination: D. S. Lewis, L.N.E.R.

Supplementary Subjects: Economics of Road Transport.—K. W. B. Davies, Southern Railway; Road Transport Operation.—K. W. B. Davies, Southern Railway.

GRADUATESHIP EXAMINATION

Parts I and II—Class II.—L. A. Dennis, G.W.R.; R. D. H. Jones, G.W.R.

Class III.—D. Beedie, L.M.S.R.; E. E. Hens, G.W.R.; S. Johnson, L.M.S.R.; F. M. Murphy, Ribble Motor Services Limited; C. L. Newbury, G.W.R.; W. G. Williams, L.M.S.R.

Part I only.—G. N. Emis, L.N.E.R.; R. D. Foster, L.M.S.R.; E. A. L. Hardman, L.P.T.B.; D. R. Hunter, Ribble Motor Services Limited; A. J. Lee, L.M.S.R.; H. Milnes, L.M.S.R.; H. Wilkinson, L.M.S.R.

Part II only.—I. J. Adgie, Southern Railway; C. W. Bathurst, L.P.T.B.; K. M. Dowrick, G.W.R.; J. R. Sampson, L.M.S.R.

The undernamed candidates who have also passed the Graduateship examination had been granted exemption in certain subjects of the examination:—J. A. McMullen, L.M.S.R.; C. A. M. Peaty, G.W.R.; G. N. Southerden, G.W.R.

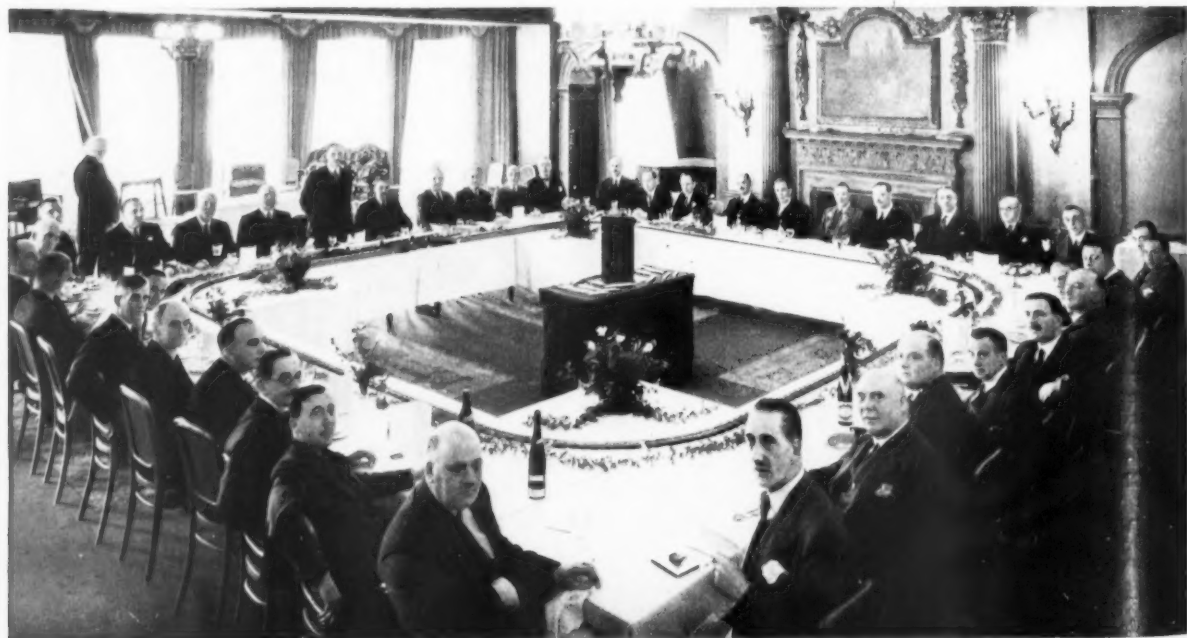


Photo by

[Rawood Limited]

Complimentary luncheon to Mr. Cyril R. Dashwood on his appointment as Assistant General Manager, G.W.R.

Non-Conducting Coverings for Locomotive Boilers

On page 387 of our issue of March 9 we commented upon the importance of the use of suitable non-conducting coverings for locomotive boilers to obtain the best results, namely, steaming power and coal saving. Tests made in various directions, including a great many made at the National Physical Laboratory, show that a saving of from 70 to over 90 per cent. can be obtained with a suitable non-conducting covering as compared with an uncovered boiler. Experiments have also been made to ascertain the saving effected by suitable covering as compared with the air space only between the cleading plates and the boiler plates, and this has been found to be 76 per cent. even with atmospheric temperatures as high as 100° F.

In connection with this matter we have received from J. W. Roberts Limited, Midland Works, Armley, Leeds, a copy of the firm's latest brochure, entitled "Limpet Mattresses." This is well produced in a tastefully designed three-colour cover, and the illustrations show locomotive boilers of large size for Indian and Russian railways in process of being lagged with the firm's insulating material. There is also a picture of an XD class 2-8-2 heavy freight locomotive with double bogie tender built by the North British Locomotive Co. Ltd. for H.E.H. The Nizam's State Railway.

As presumably everyone concerned with locomotive design and construction knows, the subject of non-conducting boiler coverings has received the special attention of J. W. Roberts Limited and its associated companies for many years. They have carried out a very large number of experiments and are still experimenting not only with asbestos, but with other materials which have been suggested from time to time for the purpose in hand. Tests are constantly being made by them and also by the National Physical Laboratory with a view to ascertaining the efficiency of various materials, the object being that of securing high thermal efficiency and light weight.

As the result of this experience—going back, as it does, for some 40 years or more—the conviction has been reached that a well made and well fitted asbestos mattress is one of the most economical and efficient methods of boiler covering. Asbestos, being a mineral fibre, is a good non-conductor of heat; its structure contains small air cells which greatly increase its thermal efficiency, particularly when manufactured in the form of a mattress. As a consequence the outside surface of an asbestos mattress is maintained at low temperature and the losses from radiation and forced convection are therefore correspondingly low.

The Limpet asbestos mattress fits very closely to the boiler plates, and this prevents the circulation of hot air

adjacent to the plates which is responsible for loss of heat when using coverings without this characteristic. It must further be remembered that asbestos is capable of withstanding the highest temperatures in modern boiler practice.

A point of considerable importance is that the Limpet asbestos mattresses as applied to locomotive and other

boilers remain serviceable for many years. They can be removed and replaced many times and it is on record that they have frequently outlived the boiler itself. Even in tropical climates with high atmospheric temperatures the first cost of the mattresses can be saved within a short time and extra steaming power obtained from the boilers. Those who have had experience of travelling on locomotive foot-plates will know that an efficiently clothed boiler and firebox means greatly increased comfort for the enginemen.

Photo-Electric Control of Escalator Speeds

The wear and tear on the mechanical parts of a modern escalator in continuous motion, such as the type used on the London Underground railway system, is very heavy. In the case of stations where there are times of the day at which traffic is light the escalator is frequently found without anybody on it and running at its normal high speed. In order to reduce the wear it is desirable to run the escalator at a much slower speed when no one is travelling on it, and to speed it up as soon as passengers arrive. The General Electric Co. Ltd. has supplied photo-electric apparatus to the London Passenger Transport Board for this purpose, and the equipment has been in operation now for some time on an escalator at Manor House tube station on the Piccadilly Line.

The photo-electric gear is installed at the entrance to the escalator. On one side of the gangway and below the handrail is the lamphouse, and on the other side, exactly opposite to receive the light, is the photo cell in a suit-

able housing. These units are mounted in fittings appropriate to the general scheme of the escalator fittings and are not obtrusive. The main amplifier is situated below the floor level and contains the control gear which operates the speed change. Normally the escalator is on slow speed, but as soon as the beam is interrupted by a passenger stepping on, the speed increases in six smooth steps, so that the passenger is unaware of the change, and there is no shock or jerk. A time delay switch then comes into operation and keeps the speed at the high rate until the passenger has had time to reach the top, when the escalator automatically reverts to the slow speed. If, however, before the passenger gets off another gets on, the time period starts again, so that the delay period always starts from the time the last passenger mounted the escalator. Consequently, if there is a continuous stream of people, the escalator continues to run at high speed as long as there is anybody on it.

Institute of Transport 1934-35 Session

Mr. Sidney E. Garcke will deliver his presidential address at the opening meeting of the 1934-35 session of the Institute of Transport, to be held in London on Monday, October 8, at 5.30 p.m. Other sessional arrangements are:—

Ordinary meetings to be held on Mondays, at 5.30 p.m., at the Institution of Electrical Engineers, London:—

November 12.—Annual general meeting, to be followed by paper on "Speeds of travel in the Future," by R. Carpmal.

December 10.—"The Future of the North Atlantic Trade," by F. Bustard, O.B.E.

January 14, 1935.—"Aerodrome Design," by Sir Leopold H. Savile, K.C.B.

February 11.—"Goods Shed Operations," by E. Falconer.

March 11.—"Canal Betterment," by W. H. Curtis.

April 8.—"The Road and Rail Traffic Act, 1933," by J. S. Nicholl.

Lectures and informal meetings to be held on Tuesdays, at 6.0 p.m., at the Institution of Electrical Engineers, London:—

October 16.—Lecture, "Practical and Economic Considerations in the Study of Transport," by D. R. Lamb.

November 20.—Informal meeting, "Safety on the Roads," by F. G. Bristow, C.B.E.

December 18.—Lecture, "Time-tables in Theory and Practice," by W. E. Green.

January 15, 1935.—Informal meeting, "Steel Rolling Stock (Passenger) for Railways," by C. E. R. Sherrington, M.C.

March 19.—Informal meeting, "The Co-ordination of Ports with other Transport Undertakings," by T. R. Toovey, M.B.E.

April 16.—Lecture, "Transport Developments in 1934," by R. Bell, C.B.E.

Special lecture for Metropolitan transport students, to be held on Tuesday, at 6.0 p.m., at the Institution of Electrical Engineers, London:—

February 19, 1935.—"Methods of Negotiation between Transport Undertakings, Their Employees and Trade Unions," by John Cliff.

LONDON TRANSPORT POSTERS.—The charm of the countryside is pleasantly brought out in a couple of finely-coloured posters just issued by London Transport. They are labelled: "At London's Service," and relate to Chalfont St. Giles and Beefield, Farnham, respectively.

RAILWAY AND OTHER MEETINGS

EGYPTIAN DELTA LIGHT RAILWAYS LIMITED

The annual general meeting of the Egyptian Delta Light Railways Limited was held on Friday, July 20, at Winchester House, Old Broad Street, E.C., Sir Montagu Sharpe, K.C. (Chairman of the company) presiding.

The Secretary (Mr. F. R. Parker) having read the notice convening the meeting and the auditors' report,

The Chairman moved the adoption of the report and accounts, and in the course of his remarks said he was glad to say there were now signs of a definite, though slow, improvement in the conditions in Egypt, and the general economic situation was gradually adjusting itself to conform with the lower prices of agricultural produce. Debts were being reduced or written off and rents lowered and, while the fellahen were still extremely impoverished, it was felt that another good cotton crop should, if it could be marketed at slightly higher prices than those of last year, have a marked effect on the general situation. That, he had no hesitation in saying, would favourably affect their company's receipts. One favourable augury was that it was understood the present Government's policy was to cease any intervention in the cotton market; and, further, he believed that practically the whole of the very large Government stock of cotton had now been liquidated, which should help considerably in improving market conditions in the future.

In that connection it must always be remembered that their company was essentially an agricultural railway and as such almost entirely depended upon the various crops raised and the prices at which such crops could be disposed of.

Another factor which disturbed the anticipated improvement was the more severe competition during the past year between the various firms of transport such as motor road vehicles, canal and river boats, and camels and donkeys. In order to meet this condition of affairs they had had no alternative but to carry traffic at low, and often barely remunerative rates. In many cases it was difficult to believe that the charges made by the lorries and other motor vehicles could possibly cover running expenses, and it was very questionable if any provision was made by their owners to meet the expense of repairs and depreciation. Notwithstanding this, however, their competitors still carried on and if some failed, there appeared to be others ready to take their place. It was hardly necessary for him to mention that the question of competition in all its aspects was constantly under review by the management in Egypt and by their board, and all practical steps had been and were being taken to meet it and to stimulate their traffic.

Dealing specifically with the coaching returns, they would have noticed that the decrease in the number of passengers carried during the year under review, as compared with the previous year, was 77,335. Under existing conditions this decrease could be accounted for, since, in addition to competition, there had been a marked increase in the number of the fellahen, who, because of their extreme poverty, now either walked or rode their donkeys to and from markets from any distance up to 15 kilometres.

Turning now to the goods tonnage lifted, they would have read in the report that there was a net decrease of 28,046 tons. The most marked decreases were under the following heads:—Building materials and stone, which showed a reduction of 38,416 tons. This was directly attributable to the slackening in building activity due to the general financial situation. Cereals showed a decrease of 13,777 tons, which was accounted for by the smaller area sown during the year under review. Fruits and vegetables were down by 10,738 tons, and this was very largely due to the complete failure of the melon crop last autumn in the Behera district.

The only marked increase was in unginced cotton, of which commodity they carried 133,448 tons, as against 88,406 tons in the previous year—an increase of about 50 per cent. The fact that the receipts did not increase in the same proportion as the tonnage was due to the necessity of reducing rates to meet the ruinous lorry competition to which he had already referred.

With regard to the working expenses, these again showed a decrease, the total for the year under review being £189,086, compared with £195,376 for the previous year and £220,490 for the year 1931-32; but, as he had explained when he last addressed them, it was now practically impossible to make further reductions in expenditure of any moment consistent with the proper maintenance and administration of the railway.

Capital expenditure for the year was restricted to necessary minor works, and no important capital expenditure was contemplated until the financial position improved.

Turning to the net revenue account, they would observe that, after meeting all fixed charges, the net earnings from all sources for the year amounted to £12,151 14s., and that the directors were recommending the payment of a dividend of 1 per cent. on the preference shares, which would absorb £10,407 16s. and leave £1,743 18s., which, with the amount of £44,939 18s. 3d. brought forward from the previous year, made a total of £46,683 16s. 3d. to be carried forward.

With reference to the prospects for the current year, he hesitated to express an opinion, but he might

mention that the price of cotton had improved again during the last few months, and, provided this was maintained and a good crop harvested, he thought some increase in their receipts might reasonably be expected.

Reports which had been received from Egypt estimated the cotton acreage under cultivation as being in the neighbourhood of 2,190,000 feddans this year, against the official figure of acreage planted last year of 1,804,000 feddans, with consequent expectations of a larger crop.

It was recently reported, however, that leaf worms had attacked the crops in the Delta, and, although they understood that energetic measures were now being taken by the Egyptian Government to deal with this trouble, it was not possible to obtain an opinion at this stage to what effect it would have on the yield. He might mention that their receipts to date showed an increase of £1,172 as compared with the previous year.

In conclusion, the Chairman mentioned that owing to the death of their esteemed colleague, Mr. E. W. P. Foster, the directors had invited Mr. F. J. Horne, who for the past 34 years had ably filled the office of Secretary, to join the board. Mr. F. R. Parker had been appointed to the post of Secretary, and the directors had every confidence that he would ably carry out the duties of his office. From what he had said earlier they would appreciate the numerous difficulties which their Agent and General Manager, Colonel Marryatt, and his staff had had to contend with in Egypt, and they gladly acknowledged their high appreciation of the care and attention bestowed on the company's affairs.

The Hon. W. B. L. Barrington seconded the resolution which was unanimously adopted.

BOMBAY, BARODA AND CENTRAL INDIA RAILWAY COMPANY

The 147th general meeting of the Bombay, Baroda & Central India Railway Company was held on Wednesday, July 25, at Southern House, Cannon Street, E.C. Major A. D. G. Shelley, R.E. (Chairman of the company), presiding.

The Secretary (Mr. S. G. S. Young) read the notice convening the meeting.

The Chairman, in moving the adoption of the report and accounts, said they would see from paragraph 2 of the former that 3,692 miles of railway were worked by the company during the year under review. This mileage was 252 less than that worked during the previous year, due principally to the assumption by H.H. the Gaekwar of Baroda of the working of his group of metre gauge railways centring on Mehsana to which he had referred when last addressing them. Running powers for the company's goods trains continued, however, to be exercised over the Mehsana-Viramgam section, which was a connecting link between

the company's metre-gauge systems in Rajputana and Kathiawar.

Expenditure on capital account continued to be severely restricted during the past year, and after allowing for certain credits in connection with the transfer of working to the Baroda State to which he had just alluded, amounted to about Rs. 17½ lakhs only. The building of the new Nerbudda bridge, which was progressing rapidly, formed the largest item of expenditure, while the development of the company's Kurasia colliery was another important item, which, however, promised to be very remunerative on account of the relative proximity of the colliery to the company's system as compared with the Bengal coalfields.

The slight re-arrangement of the capital account, to which he had referred at the last meeting, whereby Rs. 10 crores of the Secretary of State's profit-sharing preferred capital was converted into 4½ per cent. fixed interest capital, had been advantageous to the company in respect of the past year's working, their share of surplus profits having in consequence been increased by nearly £3,000.

Turning now to the revenue account, it would be seen from paragraph 5 of the report that the gross earnings of the year were about 4 per cent. in excess of those of the corresponding period, while expenditure was slightly less, resulting in an increase in net earnings of over 10 per cent. This increase was welcome, and the net earnings so obtained were the highest since the year 1928-29, but the recovery in gross earnings was progressing rather slowly and the greatest economy in expenditure had still to be exercised. The percentage cut in all salaries and wages, which was reduced by one-half in respect of the year under review, had had to be continued at the reduced figure during the current year, but he trusted that it would before long be possible to dispense with it entirely.

Regarding the increase in earnings, they would see from paragraph 10 of the report that the increase in the volume of traffic was well distributed over all the main heads, pointing to a general improvement in trade conditions. The revenue expenditure of the year was set out in paragraph 11 under the various abstracts and he did not think that he could with advantage add anything to the full details given therein. The net result was a saving of about Rs. 2½ lakhs.

As to the current year's prospects, he was glad to say that the returns of traffic for the first quarter of this year were about 4 per cent. over those of last year and, while the increase was again principally in goods traffic, there were signs in recent weeks of a recovery in coaching earnings also. A larger programme of replacement and renewal works would, however, in consequence of the restrictions on expenditure during the last two years, have to be faced this year, and some increase in the percentage of expenses

to receipts seemed probable. Provided, however, that the improvement in traffic was maintained, he did not anticipate any difficulty in meeting the cost of these deferred renewals without affecting their usual dividend of 6 per cent.

The dividend in respect of the past year which the board now recommended stockholders to declare at the rate of 6 per cent. was covered by the receipts relating to the year and a surplus of about £2,400 would remain at credit of the stockholders' revenue account. The balance on that account was, as

they knew, maintained principally for dividend equalisation purposes, and its value had been demonstrated during the past three years when the balance had to be drawn on to the extent of about £40,000 in all. It was therefore very satisfactory to have the position reversed this year, although it was only to a small extent.

The resolution was seconded by Col. W. V. Constable, R.E., and carried unanimously; and after the transaction of some further business the meeting closed with a vote of thanks to the Chairman and directors.

RAILWAY AND OTHER REPORTS

London Midland & Scottish Railway.—The Secretary writes, July 26 :— "For the first half-year of 1934, compared with that of the previous year, the net revenue of the company increased by £1,000,000, as follows :—

	Railway	Other Businesses, Total &c.	
Additional receipts	£ 1,600,000	300,000	1,900,000
Additional expenditure :—			
Salaries & wages	500,000	100,000	600,000
Other ...	150,000	150,000	300,000
Total ...	650,000	250,000	900,000
Net ...	950,000	50,000	1,000,000

This improvement of £1,000,000 contrasts with decreases in the four preceding June half-years of £1,200,000, £1,400,000, £1,000,000, and £300,000, respectively, making a net decrease for June, 1934, compared with June, 1929, of £2,900,000. In considering the immediate prospects, it has to be borne in mind that the level of the traffic receipts in the December half-year, 1933, was appreciably higher than in the June half-year, 1933 (compared with which the increase now recorded has been made), and there is no present indication that the traffic receipts for the December half-year 1934 will show an increase over the second half-year of 1933 approaching in amount that for the June half-year. In the circumstances, the directors have decided to make interim payments on the 5 per cent. redeemable preference stock (1955) at the rate of £1 17s. 6d. per cent., compared with £1 5s. per cent. in 1933 : 4 per cent. preference stock at the rate of £1 10s. per cent., compared with £1 per cent. in 1933; and no interim payment on the 4 per cent. preference stock (1923) and ordinary stock. The warrants in payment of these dividends will be posted on August 21."

Great Northern Railway (Ireland).—The company state with reference to the consolidated 4 per cent. guaranteed stock, that the result of working during the half-year to June 30, 1934, after providing for the charges (including debenture interest), will show a loss equal to or exceeding the total amount of the free reserves available at

that date. The directors are therefore obliged to defer payment of a dividend to the guaranteed stockholders in respect of the half-year to June 30, 1934, until the accounts for that period have been made up.

Southern Railway.—The directors announce interim dividends for the half-year ended June 30 at the full rates on the guaranteed preference and preference stocks. No interim dividend is being paid on the preferred ordinary stock. Net revenue for the past half-year was £90,000 above that for the first half of 1933.

Vickers Limited.—The directors give notice that the following interim dividends for the half-year ended June 30, 1934, will be paid to the holders of the preferred stock and preference shares of the company who are registered in the books of the company on Monday, August 6, 1934 : 2½ per cent. (less income tax) on the preferred 5 per cent. stock; 2½ per cent. (less income tax) on the 5 per cent. preference shares; 2½ per cent. (free of income tax) on the cumulative preference shares. Payment will be made on Friday, August 24, 1934.

Beyer, Peacock & Co. Ltd.—The accounts for 1933 show a further loss amounting, after meeting debenture interest, to £43,879 (against £47,735 for 1932), which converts the credit balance of £7,388 brought in into a debit balance to be carried forward of £36,491. Provision has been made for depreciation up to December 31, 1931. Preference dividends are unpaid in respect of periods subsequent to June 30, 1931. In the report, the board, which was reorganised earlier in 1934, state that 1933 witnessed a continuation of the most severe depression in the history of the locomotive industry. Stringent economies have been made in order to conserve cash resources and the directors relinquished their fees. In March last the debenture-holders agreed to a suspension of the operation of the sinking fund arrangement for two years, no dividends to be paid while the suspension is in force. The physical assets have been maintained in readiness for a renewal of productive activity.

NOTES AND NEWS

Unclaimed Railway Property.—The lost and unclaimed property in the Southern Railway Company's possession prior to March 31 last will be sold by auction at the company's sale room, Griffin Street, York Road, Waterloo Station, S.E.1, on Monday, October 1 and two following days.

Another G.W.R. Halt.—On Saturday, August 4, a new G.W.R. halt will be opened at Cound between Cressage and Berrington on the Severn Valley branch line. The halt will be served by all trains on the Shrewsbury-Bridgnorth-Worcester line, and extensive cheap ticket facilities will be given to the surrounding districts.

No More Fourth Class in Poland.—With the introduction of the summer time-tables on May 15 last, fourth class was abolished in Poland. The carriages of this class ran on the western lines, and were relics of German days. A revised scale of second and third class fares was drawn up by the Minister of Communications, and came into operation on the above date.

Evening Scenic Trips, L.N.E.R.—The first L.N.E.R. week-day evening scenic trip was run on July 18, from Newcastle-upon-Tyne to the Roman Wall and via the North Tyne and Rede valleys. By means of one of the new tourist trains with buffet cars, described on page 145, which left at 5.35 p.m., passengers after going straight from their places of employment to the station were enabled to have tea on the train. The fare was only 2s., and the train arrived back at 9.17 p.m.

Increased L.M.S. Services Between Romford and Tilbury.—Owing to housing estate development in the district the L.M.S.R. is to provide considerably augmented train services on the branch line between Romford (Essex), Upminster, Grays, and Tilbury. Beginning on August 1, reversible steam trains ("push-and-pull" units) will be introduced, in addition to ordinary steam trains, and about 20 additional weekday services will be given daily in each direction by the running of new trains and extension of existing ones. The service will be still further augmented on the introduction of the winter time-table in October.

Greenwood & Batley Progress.—The result of the working of this company for the year ended March 31, 1934, is the best attained in the last four years. An appreciable amount of experimental work was successfully undertaken in the course of the year to enable the company's customers to be offered machinery of the most modern type. Several machines specially designed for use with very high-speed cutting tools have been added to the plant, some of which are of the company's own manufacture, and these are giving very satisfactory results. The profit on trading, &c., was £38,488, an advance of £5,581 on the previous

year, and the dividend on the ordinary shares has been increased from 2½ per cent. to 3½ per cent.

Excursion Trips to Canadian Gold Mines.—Montreal residents are being offered by the Canadian National Railways special excursion trips to the gold-mining centres of Noranda and Rouyn and to the new settlement areas along the trans-continental line through Northern Quebec.

Siberian Mineral Line Completed.—An important new line, worked by electric traction, has just been put into operation between Kusnezsk and Jurga, a junction on the Trans-Siberian Railway to the east of Norosibirsk. This 180-mile line has been built at a cost of 106,000,000 chervonetz roubles and forms the main outlet for the mineral products of the Kusbass. There is a short branch line from Kusnezsk to Mundibash, where is situated the Stalin Metalworks.

Opening of Knightsbridge (West Entrance) and Closing of Brompton Road Station.—On Monday next, July 30, an additional entrance to Knightsbridge Underground station, situated at the corner of Hans Crescent and Brompton Road, will be opened by the London Passenger Transport Board. From the main street entrance a long subway, lined with showcases, leads to a new booking hall which has been constructed under the entire width of Brompton Road. Two new escalators run direct to the west end of the station platforms. This second entrance to the station, 300 yards west of the entrance at the junction of Sloane Street and Knightsbridge, which serves the east end of the platforms and which was opened earlier in the year, eliminates the necessity of keeping Brompton Road

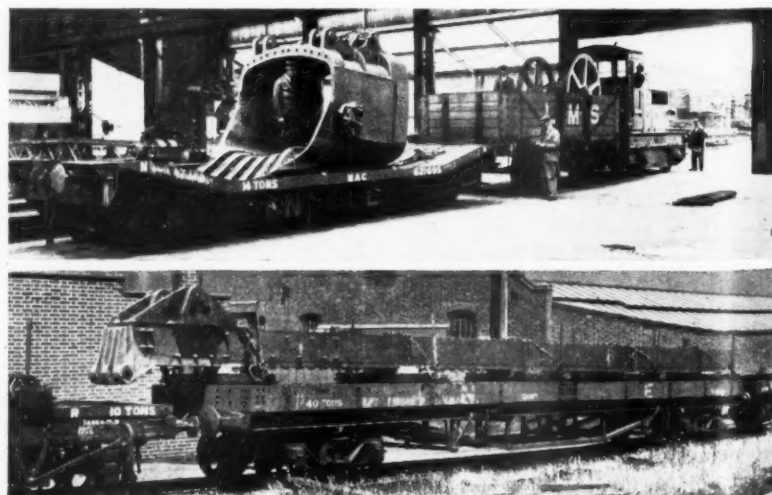
station open. Brompton Road for many years past has been the least used of London Transport stations in Central London. The closing of Brompton Road, simultaneously with the opening of Knightsbridge (West entrance), will effect a saving in journey time of all trains on the Piccadilly Line.

The Week's Road Accidents.—The Secretary to the Ministry of Transport has issued the following return, for the week ended July 14, of persons killed or injured in road accidents:—

	Killed in accidents reported during the week	Reported during the week as having died as the result of accidents occurring in previous weeks	Injured in accidents reported during the week
	No.	No.	No.
England	99	25	4,803
Wales ...	5	1	237
Scotland	10	3	542
	114	29	5,582

The total fatalities of the week as the result of road accidents were, therefore, 143, as compared with 180 in the previous week. The latter figure was, however, as we recorded last week, the highest for a considerable time. An editorial note on page 130 refers to road accident figures for the sixteen weeks ended June 30.

Transporting Europe's Largest Shovel.—The L.N.E.R. has recently completed the transport from Ipswich to Corby of the largest shovel ever made in Europe. This stripping shovel is mounted on wheels and moves on two sets of metals on its site where it is to be used to lift earth from ironstone deposits to a depth of 75 ft. It is controlled by one man and is to be worked by electricity from the grid system. It will move 500 tons of earth an hour, and without its successful operation the scheme for the develop-



The largest shovel in Europe being transported by the L.N.E.R. from Ipswich to the new Stewarts and Lloyds plant at Corby

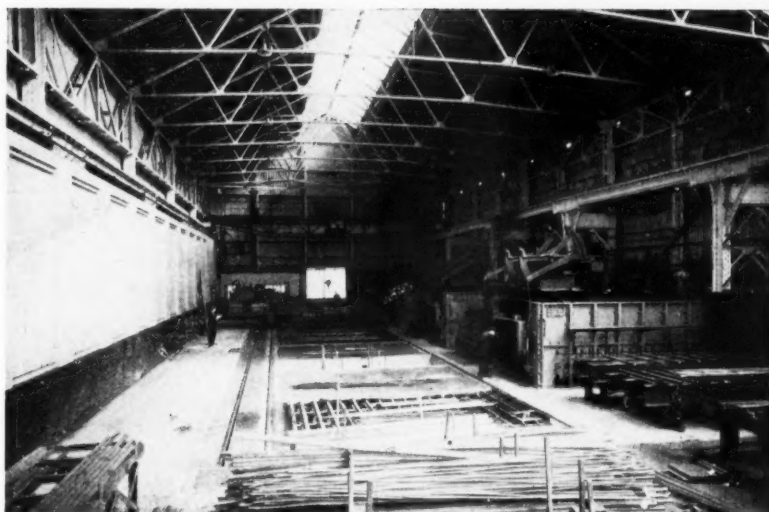
ment of a new industrial area would not be possible. The machine was transported in sections, on 14-ton wagons, the last section, weighing 13 tons, being the stick and bucket. One hundred men worked for a year on the building of the machine, which absorbed 350 tons of steel and which weighs in working order 600 tons. It was constructed by Ransomes & Rapier Limited, Waterside Works, Ipswich.

London Transport Bill.—The London Passenger Transport Bill, as amended, was read a third time in the House of Lords on Tuesday, July 24, and passed and returned to the Commons.

Argentine Railways and Exchange.—Mr. Mervyn Ryan, General Manager of the Buenos Ayres & Pacific Railway, addressing the British Ambassador at the annual dinner of the British Engineering and Transport Institutions in Buenos Aires is reported by Reuters to have said:—"Unless we can obtain sufficient sterling exchange both for the stockholders and for the purchase of supplies, preference will be given to the former, with the prospect of our buying less and less British goods and increasing our local purchases."

Central Railway of Chubut.—The Bill authorising the purchase of the railway by the Argentine Government was passed by the Argentine Senate last year. The directors are not in a position at present to give any definite information as to the progress of the measure through the Chamber of Deputies, subsequent to which it will come up for consideration before a Commission of that Chamber, but they are of opinion that it will be more convenient to postpone the issue of the report for the year to June 30, 1934, until October.

The New Midlands-I.O.W. Railway Air Service.—Railway Air Services Limited has now issued particulars of the new air service between Birmingham, Bristol, Southampton and Cowes, which was announced in THE RAILWAY GAZETTE last week. As we then stated, the service will be twice daily in each direction (Sundays excepted), and will operate thus from Monday next (July 30) until August 31. Departures will be from Birmingham (Snow Hill) at 9.00 a.m., and 1.35 p.m., with arrivals at Cowes S.R. station at 11.35 a.m. and 4.15 p.m. In the opposite direction the departures from Cowes will be at 11.55 a.m. and 4.50 p.m., with arrivals at Birmingham at 2.40 p.m. and 7.25 p.m. There will be a number of connections with other internal routes, namely, at Birmingham with Railway Air Services Liverpool planes, and at Bristol with the Norman Edgar Western Airways Cardiff-Bournemouth services. The new services will be operated by De Havilland Dragon eight-seat two-engined aeroplanes. Special cars will be run between Birmingham (Snow Hill and New Street stations) and Castle Bromwich aero-



The new heat treatment plant of the English Steel Corporation Limited

drome; Temple Gate enquiry office, Bristol (Temple Meads) station, and Whitchurch aerodrome; and between Southampton Terminus station, West station, and Southampton airport. Passengers taking return air tickets to those towns served by Railway Air Services have the option of making the return journey by rail.

The Doncaster Collision.—The collision, on March 28, on the south side of Doncaster, between the first and second portions of the 10.25 p.m. L.N.E.R. express from King's Cross to Scotland, mentioned on page 596 of our issue of April 6, was inquired into by Lt.-Col. Woodhouse, and his report thereon has now been issued. A dense fog came on just after midnight, and whilst the fog-signal men had been sent for, they had not arrived when these trains passed, and their drivers could not see the signals at some five or six signal-boxes. As will be seen when we review the report in an early issue, the driver of the second portion laboured under certain disadvantages arising out of the fog. Colonel Woodhouse points out that automatic train control would have averted the collision, and also recommends that detonator-placers should be provided.

Extension of the English Steel Corporation Works.—In order to meet the rapidly increasing demand for both bright and black steel bars, the English Steel Corporation Limited has recently installed at the Vickers Works a new and up-to-date plant for heat treating, warehousing, cold drawing and centreless grinding the steels which they manufacture. The heat treatment section consists of three town gas fired regenerative furnaces, built by Priest Furnaces Limited, thermostatically controlled and equipped with the latest type Electroflo recording and indicating gear. The special steel warehouse has been designed and equipped to deal with the

output of the heat treatment department and the layout so arranged that the operations of examination, testing for quality by spark and spectroscopy, straightening, sawing, cropping and despatching can be carried out in proper sequence with a minimum of handling. The centreless grinding and bright drawing is specially equipped for the production of bright ground or drawn bars in all qualities of alloy steels. The whole plant is modern and up-to-date and is far in advance of any similar plant in this country.

Russian Locomotive Building.—On page 35 of our issue of July 6 we quoted from a long letter by Mr. Marcus Samuel in *The Manchester Guardian*, in which extracts from various Russian technical journals were collected as indicating that the management of the new locomotive works at Lugansk was anything but satisfactory. We have now received a letter from Mr. Louis Segal, the editor of the *Monthly Review*, issued in London by the Moscow Harodry Bank Limited, as follows:—"Mr. Samuel endeavours to find a contradiction between a description of the Lugansk locomotive works in the January issue of the *Monthly Review* as a modern and well-equipped plant and a recent statement that it was badly run. Any person in his normal mind would realise that a very modern factory may have an inefficient administration for a time (the plant was completed only in December, 1933) and there is no contradiction between the two. Mr. Samuel also tries to find a contradiction between the statement in the *Monthly Review* that the Lugansk enterprise involved an investment by the Soviet Government of 450 million roubles and a statement published in *La Industrialisatzia* that 'the plant cost 200 million roubles to build.' But he himself quotes from the *Monthly Review* 'A new townlet had to be built around

the enterprise to accommodate the workpeople. Surely, to build a new town for 14,500 people (the number employed when the work was started) must involve some expense. Though the construction and equipment of the plant itself has cost only 200 million roubles, the amount the Soviet Treasury had to find for this enterprise was more than double this sum, because of the necessity to build a new town near the works. I may add that in a subsequent letter to *The Manchester Guardian* Mr. Samuel accepts these figures as correct."

Contributory Pension Scheme for Canadian National System.—Following an investigation by a joint committee of officers of the company and representatives of the employees, a new pensions plan will be brought into effect on the Canadian National Railways on January 1, 1935. Pension equities which employees have earned for past service under the old rules are not disturbed. These will be set up as a service pension available when the employee reaches

retiring age. The new plan institutes an additional voluntary annuity trust fund to which an employee may contribute from 1 to 10 per cent. of his salary, the company contributing an equivalent sum up to 5 per cent. Upon retirement at 65 years of age, the company grants the service pension and provides an annuity based on the joint contributions to the trust fund and the interest thereon.

Encouraging Southampton Docks Returns.—The Southampton Docks traffic returns for the half-year ended June 30, 1934, make encouraging reading, especially as compared with the general depression reflected in trade statistics during past years. Under all the main headings—shipping, tonnage, cargo, and passengers—increases were recorded, compared with the corresponding period of 1933. The quantity of shipping handled at the docks for the six months was 15,650,000 tons, an increase of 5 per cent. over the six months ended June, 1933.

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices	
			July 25, 1934	Rise or Fall
G.W.R.				
Cons. Ord. ...	55½	31	51	—1
5% Con. Prefce. ...	109¾	69½	113½	—
5% Red. Pref. (1950) ...	109¼	87½	110½	—
4% Deb. ...	108½	99½	106½	—
4½% Deb. ...	108	100¾	108½	—
4½% Deb. ...	116	106	116½	+1
5% Deb. ...	128	117½	126½	—
2½% Deb. ...	65	60	69½	—
5% Rt. Charge ...	124	111½	125½	—
5% Cons. Guar. ...	122	103	123½	—

L.M.S.R.				
Ord. ...	297½	12½	22	—1
4% Prefce. (1923) ...	51	17	47	—2
4% Prefce. ...	72	33½	79½	—1
5% Red. Pref. (1955) ...	93	47¼	100½	—
4% Deb. ...	103¼	89½	102½	—
5% Red. Deb. (1952) ...	114	105	111½	—
4% Guar. ...	97½	68½	100	—

L.N.E.R.				
5% Pref. Ord. ...	22½	7½	16½	—1½
Def. Ord. ...	10¾	4½	7½	—½
4% First Prefce. ...	65½	19½	65½	—1
4% Second Prefce. ...	40½	12½	31½	—1½
5% Red. Pref. (1955) ...	83½	27	85½	—
4% First Guar. ...	94½	58½	95	—
4% Second Guar. ...	89½	48	90	—½
3% Deb. ...	77	60½	76	—
4% Deb. ...	102½	80	101	—
5% Red. Deb. (1947) ...	112	102½	109½	—
4½% Sinking Fund Red. Deb.	107½	98½	107½	—

Southern				
Pref. Ord. ...	71	27½	78	—2
Def. Ord. ...	24½	9½	23½	—2
5% Prefce. ...	107½	74	113	—
5% Red. Pref. (1964) ...	107½	78½	111½	—
5% Guar. Prefce. ...	124½	102½	124½	—
5% Red. Guar. Pref. (1957) ...	115½	103½	114½	—
4% Deb. ...	107½	96½	105	+½
5% Deb. ...	126½	112½	126½	—
4% Red. Deb. 1962-67	107½	100	107½	—

BELFAST & C.D.				
Ord. ...	6	4	5	—

FORTH BRIDGE				
4% Deb. ...	99½	95½	101½	—
4% Guar. ...	98½	94	100½	—

G. NORTHERN (IRELAND)				
Ord. ...	7½	3½	5	—

G. SOUTHERN (IRELAND)				
Ord. ...	28	16	14	—
Prefce. ...	24	12½	16½	+¾
Guar. ...	42	16¾	46	—
Deb. ...	60	30½	63	+½

L.P.T.B.				
4½% "A" ...	117½	112	117	—
5% "A" ...	127½	119½	127	—
4½% "T.F.A." ...	111½	106	109	—
5% "B" ...	122½	114	121	—
5% "C" ...	86½	74½	80½	—1

MERSEY				
Ord. ...	16½	5	13½	—
4% Perp. Deb. ...	83	63½	86½	—
3% Perp. Deb. ...	62	51	64½	—
3% Perp. Prefce. ...	50½	27	52½	—

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 29th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,940½ mls.)						
Passenger-train traffic...	609,000	593,000	+ 16,000	12,919,000	12,762,000	+ 157,000
Merchandise, &c. ...	421,000	405,000	+ 16,000	12,847,000	11,763,000	+ 1,084,000
Coal and coke ...	171,000	175,000	— 4,000	6,618,000	6,334,000	+ 284,000
Goods-train traffic ...	592,000	580,000	+ 12,000	19,465,000	18,097,000	+ 1,368,000
Total receipts ...	1,201,000	1,173,000	+ 28,000	32,384,000	30,859,000	+ 1,525,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	404,000	399,000	+ 5,000	8,303,000	8,227,000	+ 76,000
Merchandise, &c. ...	287,000	285,000	+ 2,000	8,924,000	8,088,000	+ 836,000
Coal and coke ...	198,000	196,000	+ 2,000	6,603,000	5,995,000	+ 608,000
Goods-train traffic ...	485,000	481,000	+ 4,000	15,527,000	14,083,000	+ 1,444,000
Total receipts ...	889,000	880,000	+ 9,000	23,830,000	22,310,000	+ 1,520,000
G.W.R. (3,750½ mls.)						
Passenger-train traffic...	256,000	255,000	+ 1,000	5,349,000	5,389,000	— 40,000
Merchandise, &c. ...	180,000	174,000	+ 6,000	5,148,000	4,738,000	+ 410,000
Coal and coke ...	90,000	93,000	— 3,000	2,875,000	2,843,000	+ 32,000
Goods-train traffic ...	270,000	267,000	+ 3,000	8,023,000	7,581,000	+ 442,000
Total receipts ...	526,000	522,000	+ 4,000	13,372,000	12,970,000	+ 402,000
S.R. (2,176 mls.)						
Passenger-train traffic...	345,000	341,000	+ 4,000	7,958,000	7,847,000	+ 111,000
Merchandise, &c. ...	65,000	64,000	+ 1,000	1,811,000	1,726,500	+ 84,500
Coal and coke ...	26,000	29,000	— 3,000	907,000	845,500	+ 61,500
Goods-train traffic ...	91,000	93,000	— 2,000	2,718,000	2,572,000	+ 146,000
Total receipts ...	436,000	434,000	+ 2,000	10,676,000	10,419,000	+ 257,000
Liverpool Overhead ... (6½ mls.)	1,269	1,188	+ 81	32,477	31,977	+ 500
Mersey (4½ mls.) ...	4,162	3,927	+ 235	119,605	114,249	+ 5,356
*London Passenger Transport Board ...	528,000	483,500	+ 44,500	1,617,200	1,471,000	+ 146,200
IRELAND						
Belfast & C.D. pass. (80 mls.)	4,687	4,341	+ 346	68,947	69,490	— 543
" " goods	513	557	— 44	15,158	15,299	— 141
" " total	5,200	4,898	+ 302	84,105	84,789	— 684
Great Northern pass. (562 mls.)	16,000	13,200	+ 2,800	260,100	178,350	+ 81,750
" " goods	6,900	7,500	— 600	235,350	164,000	+ 71,350
" " total	22,900	20,700	+ 2,200	495,450	342,350	+ 153,100
Great Southern pass. (2,158 mls.)	32,247	31,952	+ 295	647,460	621,852	+ 25,608
" " goods	30,821	29,320	+ 1,501	928,555	868,041	+ 60,514
" " total	63,068	61,272	+ 1,796	1,576,015	1,489,893	+ 86,122

* 3rd week, the receipts for which include those of undertakings not absorbed by the L.P.T.B. in the corresponding period last year.

* ex-dividend

OFFICIAL NOTICES

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OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—The Railway Gazette, 33, Tothill Street, Westminster, London, S.W.1.

CONTRACTS AND TENDERS

The Associated Equipment Co. Ltd. has received an order from the Great Western Railway for 20 six-ton Monarch goods vehicles.

W. G. Bagnall Limited has received an order for one locomotive boiler for a 2-8-0 type locomotive for the Peruvian Corporation.

Imperial Chemical Industries Limited has received an order from the Peruvian Corporation for an electrically heated degreasing plant, type D, for cleaning locomotive parts.

C. M. Hill & Co. Ltd. has secured an order on behalf of Usines et Acieries Allard from the Buenos Ayres Western Railway for 2,400 cast steel check chairs for 100-lb. B.S. (Revised) rails.

Fried Krupp A.G. has received an order for 150 2 ft. 2½ in. diam. carriage and wagon tyres at a cost of £412 10s. f.o.b. Rotterdam-Antwerp from the Egyptian State Railways Administration.

The Eyre Smelting Co. Ltd. has received an order from the Egyptian State Railways Administration for 360 metallic packing in die cast bushes 12 in. long, various dimensions, at a total cost of £250, delivery f.o.b. London.

D. Wickham & Co. Ltd. has received an order from the Egyptian State Railways for one six-seater petrol-driven inspection railcar, and an order from the South African Government Railways and Harbours Administration for six pump trolleys.

The Egyptian State Railways Administration has placed orders (Ref. No. E.S.R. 7.51) for a total of 26,800 kg. of flat steel bars for laminated springs, divided as follows:—Colville's Limited, Item No. 1 at total cost of £95 5s. 6d. f.o.b. Glasgow; and Fried Krupp, Item No. 2 at total cost of £222 15s. f.o.b. Rotterdam.

The L.M.S.R. has placed orders with five British firms for a total of 400,000 cups and 220,000 saucers for use in refreshment rooms and on station buffet barrows. Details of the orders are as follow:—J. & G. Meakin Limited, 80,000 cups and 40,000 saucers; W. H. Grindley & Co. Ltd., 80,000 cups and 40,000 saucers; W. R. Midwinter Limited, 80,000 cups and 60,000 saucers; Alfred Meakin Limited, 80,000 cups and 40,000 saucers; and the New Hall Pottery Co. Ltd., 80,000 cups and 40,000 saucers.

The Britannia Engineering Co. Ltd. has secured an order from the North Western Railway of India for 1,000 screw couplings at Rs. 17 each.

The G.I.P. Railway has recently placed the following orders:—

Gaya Din Ram: 400 tons fishplates for 80 lb. F.F. rails, at Rs.35.5.0 per ton.
Bindeshri Prasad Satnarayan: 722 tons check and stock rails, 82-lb. section, at Rs. 65.5.0 per ton; 894 tons check and stock rails for acute angle crossings, 69-lb. section, at Rs. 65.5.0 per ton; and 166 tons check rails, 82-lb. section, at Rs. 65.5.0 per ton.

N.V. Werkspoor, of Amsterdam, has received an order of 40 open wagons of 24 tons capacity from the Netherlands Department of Mines. These wagons are for use in the South Limburg coal traffic, and eight of them will be fitted with Westinghouse brakes.

Locomotives for Chinese Railways

Orders for 42 new locomotives for service on standard-gauge lightly laid lines now in course of construction in China have been placed as follow:—

Wuhu - Chapoo Railway: Skoda Works, Two locomotives; and Ateliers Metallurgiques Tubize, 10 2-8-0 locomotives. Tung-Pu Railway: Orenstein & Koppel A.G., 20 2-6-0 locomotives; and Fried Krupp A.G., 10 2-6-0 locomotives.

The Chinese Government Purchasing Commission, on behalf of the Ministry of Railways, China, and to the inspection of the consulting engineers, Fox & Mayo, has placed orders with Cooke, Troughton & Simms for theodolites, and with E. R. Watts & Sons for levels and measuring instruments.

Irish Road Vehicle Orders

Leyland Motors Limited has received orders from the Great Southern Railways, Ireland, for 23 Tiger single-decked passenger vehicles, of which 14 are to be equipped with oil engines, and 10 Lion single-decked passenger vehicles comprising three petrol, three oil, two petrol-gearless and two oil-gearless buses. It will be recalled that the Great Northern Railway of Ireland also placed orders recently for Leyland passenger vehicles. Orders for oil-engined Beaver vehicles have also been received from Carter Paterson & Co. Ltd.

The L.N.E.R. proposes to equip with vacuum brakes 1,000 open wagons in order to meet the growing demand for fast freight train services. This will bring the total number of L.N.E.R. wagons fitted with automatic brakes to over 15,000.

A private teleprinter service, manufactured by Creed & Co. Ltd., and installed by the G.P.O. Engineering Department, is now in use between the London office and the Chippenham works, of the Westinghouse Brake & Saxby Signal Co. Ltd. The installation at each end includes a Westinghouse metal rectifier, which is a standard part of A.C. Teleprinter equipment.

More Wagons for Palestine

The Birmingham Railway Carriage & Wagon Co. Ltd. has received an order from the Crown Agents for the Colonies for 60 12-ton wagons for the Palestine Railways. These wagons are additional to the 40 which, as recorded in this column of THE RAILWAY GAZETTE for April 27 last, were recently ordered from the same firm for the Palestine Railways.

The Agent, G.I.P. Railway, Victoria Terminus, Bombay, invites tenders, receivable by August 15, for 33 superheated, coal-burning, locomotive boilers required during 1934-35. Further particulars can be obtained from the Department of Overseas Trade.

The Chief Controller of Stores, Indian Stores Department (Engineering Section), Simla, invites tenders, receivable on the dates given, as follows:—

39,000 ft. of 1½ in. tubular point rod to L.R.S. specification No. S5-31 and L.R.S. (S) drawings Nos. S3633 and SA3634, required for the State railways during the period November 18, 1934, to November 17, 1935. (August 13.)

Approx. 3,500 cwt. galvanised steel fencing wire, 6 and 14 S.W.G. to L.R.S. specification M-20-30 and H-10-30, required for the State railways during the period November 16, 1934, to November 15, 1935. (August 20.)

The Argentine State Railways Administration is calling for tenders, to be presented in Buenos Aires by August 7, for the supply and delivery of switches and crossings; also for tenders, to be presented in Buenos Aires by August 21, for the supply and delivery of 28 gang trolleys and 32 pump trolleys for metre gauge track; and for tenders, to be presented in Buenos Aires by August 29, for turret lathes for the quantity production of iron and brass parts. Further details can be obtained from the Department of Overseas Trade.

The port and railway administration of the Colony of Mozambique is calling for tenders, to be presented in Portuguese East Africa by September 24, for the supply of three light railway cars for two passengers, but so constructed that they can take four passengers if required, and also for tenders to be presented in Portuguese East Africa by October 25, for the supply of four locomotives and tenders and all necessary accessories. Further details can be obtained from the Department of Overseas Trade.

Railway Share Market

The stock and share markets have entered a three-weekly account with greater firmness than is usually associated with an account of this duration when it falls in the holiday season. In the Home railway market, owing to the imminence of the interim statements of the four big groups, business came almost to a standstill as far as public buying transactions were concerned. Market expectations of the statements have already been summarised in previous weeks, and there has been no important change in the situation. When the statements are available it may be anticipated that the Stock Exchange will make a revaluation of some of the stocks in the light of the additional information in regard to the ratio of working expenses to gross traffic receipts.

The major factor in the immediate outlook now becomes the wages dispute,

and until a satisfactory agreement or compromise of some kind of settlement making for peace is reached, Stock Exchange jobbers are not anticipating any great activity in home railway stocks. The weak spots this week were Southern preferred ordinary, which was presumably sold on some fears that the heavy rainfalls of the week would adversely affect the traffic movement. This is probably a short-sighted view, which is unlikely to influence the market for long if the interim report of the company fulfils expectations in showing that 3 per cent. is being earned at present on this 5 per cent. stock. L.M.S. 1923 preference stock was the only other stock to show a fall of a full point on Tuesday, when the market generally exhibited weakness. The market had been looking for the interim statement to show that a good part of the 4 per cent. dividend on this stock is being earned. The first day of the new account recorded nearly 100

bargains in the junior ordinary stocks, but as the week proceeded the daily bargains dropped to about half this number. After the issue of the statements on the last two days of the week greater activity was anticipated.

In foreign railway stocks there was some irregularity in Argentine stocks, market views about the position of the railways in the event of the world price of wheat suffering a reaction causing sales by weak operators. Antofagasta stock appreciated in price, but Nitrate Railways' shares, both in bearer and registered form, gave way. San Paulo and Leopoldina issues were lower and the Leopoldina Terminal first debenture stock was marked down 2½ points to 48-52, although no business was recorded as having been done. Paraguay Central "D" debentures and Costa Rica stock were other weak spots. Many Canadian railway stocks were advanced in price, including Grand Trunk Pacific bonds.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1933-34	Week Ending	Traffic for Week		No. of Week	Aggregate Traffic to Date			Shares or Stock	Prices				
			Total this year	Inc. or Dec. compared with 1933		Totals		Increase or Decrease		Highest 1933	Lowest 1933	July 25, 1934	Yield % (Note)	
						This Year	Last Year							
South & Central America.														
Antofagasta (Chili) & Bolivia	830	22.7.34	14,280	+ 1,610	29	£ 385,350	£ 292,600	+ 92,750	Ord. Stk.	26	115½	22	Nil	
Argentine North Eastern ..	753	21.7.34	7,688	+ 2,856	3	23,056	31,754	— 8,698	—	14½	5	8	Nil	
Argentine Transandine ..	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8	
Bolivar ..	170	June, 1934	5,100	+ 250	26	38,750	42,000	— 3,250	6 p.c. Db.	10	5	10	Nil	
Brazil ..	—	—	—	—	—	—	—	—	Bonds.	15	11	13	3½	
Buenos Ayres & Pacific ..	2,806	21.7.34	72,691	+ 8,981	3	214,165	268,406	— 54,241	Ord. Stk.	26	97½	12	Nil	
Buenos Ayres Central ..	190	10.6.34	\$117,800	+ \$400	50	\$5,340,053	\$5,251,539	+ \$88,514	Mt. Db.	30	10	21	Nil	
Buenos Ayres Gt. Southern	5,085	21.7.34	131,555	+ 44,135	3	361,995	538,493	— 176,498	Ord. Stk.	44½	21½	27	Nil	
Buenos Ayres Western ..	1,926	21.7.34	43,373	+ 14,602	3	131,983	184,980	— 53,007	"	34½	15½	21½	Nil	
Central Argentine ..	3,700	21.7.34	137,952	+ 11,319	3	384,738	477,766	— 93,028	"	28½	15	16½	Nil	
Do. ..	—	—	—	—	—	—	—	—	Div.	18	10	8	Nil	
Cent. Uruguay of M. Video	273	21.7.34	13,335	+ 1,197	3	41,954	44,147	— 2,193	Ord. Stk.	20	8	10½	Nil	
Do. Eastern Extn.	311	21.7.34	2,708	+ 441	3	8,254	7,760	+ 494	—	—	—	—	—	
Do. Northern Extn.	185	21.7.34	1,553	+ 156	3	5,133	5,503	— 370	—	—	—	—	—	
Do. Western Extn.	211	21.7.34	1,161	+ 5	3	3,221	3,644	— 423	—	—	—	—	—	
Cordoba Central ..	1,218	21.7.34	36,830	+ 7,110	3	107,740	130,730	— 22,990	Ord. Inc.	9½	21½	4½	Nil	
Costa Rica ..	188	May, 1934	16,659	+ 2,382	48	187,823	213,331	— 15,508	Stk.	25	20	27½	7½	
Dorada ..	70	June 1934	8,800	+ 100	26	60,200	44,100	+ 16,100	1 Mt. Db.	76½	68½	105	5½	
Entre Rios ..	810	21.7.34	10,252	+ 3,713	3	30,016	42,178	— 12,162	Ord. Stk.	26½	9	13½	Nil	
Great Western of Brazil	1,082	21.7.34	4,900	+ 1,500	29	226,500	294,600	— 68,100	Ord. Sh.	23½	1½	28	Nil	
International of Cl. Amer.	794	May, 1934	\$475,123	+ \$28,902	21	\$2,466,673	\$2,282,410	+ \$184,263	—	—	—	—	—	
Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	1st Pref.	1½	1½	1½	Nil	
La Guaira & Caracas ..	225½	June, 1934	3,880	+ 130	26	21,435	36,270	— 14,835	Stk.	16	10	8½	Nil	
Leopoldina ..	1,918	21.7.34	36,970	+ 12,295	29	648,669	664,197	— 15,528	Ord. Stk.	20½	10	8½	Nil	
Mexican ..	483	21.7.34	\$201,600	+ \$27,100	3	\$628,000	\$553,500	+ \$74,500	—	3	1½	2½	Nil	
Midland of Uruguay ..	319	June, 1934	8,199	+ 242	52	111,908	102,566	+ 9,342	Ord. Stk.	2	1	1½	Nil	
Nitrate ..	401	15.7.34	7,619	+ 82	28	146,283	62,635	+ 83,648	Ord. Sh.	78½	11½	27½	Nil	
Paraguay Central ..	274	21.7.34	4,950	+ 1,270	3	13,440	11,560	+ 1,880	Pr. Li. Stk.	72	49½	70½	8½	
Peruvian Corporation ..	1,059	June, 1934	54,342	+ 7,778	52	674,250	624,537	+ 49,713	Pref.	15½	5	11	Nil	
Salvador ..	100	14.7.34	69,810	+ 65,440	2	622,060	629,950	— 7,890	Pr. Li. Db.	70	66½	70	7½	
San Paulo ..	153½	15.7.34	28,378	+ 1,079	28	860,952	858,664	+ 2,288	Ord. Stk.	102	68	71	5½	
Taitai ..	164	June, 1934	5,950	+ 105	52	69,595	44,295	+ 25,300	Ord. Sh.	13½	5½	13½	5½	
United of Havana ..	1,365	21.7.34	17,702	+ 3,870	3	50,705	44,671	+ 6,034	Ord. Stk.	8	2	3½	Nil	
Uruguay Northern ..	73	June, 1934	978	+ 35	52	13,533	16,440	— 2,907	Deb. Stk.	6	3½	4½	Nil	
Canada.														
Canadian National ..	23,748	14.7.34	656,582	+ 47,026	28	17,161,470	14,683,532	+ 2,477,938	—	—	—	—	—	
Canadian Northern ..	—	—	—	—	—	—	—	—	Perp. Dbs.	60½	38	67	5½	
Grand Trunk ..	—	—	—	—	—	—	—	—	4 p.c. Gar.	99½	85	102½	3½	
Canadian Pacific ..	17,018	21.7.34	502,000	+ 43,400	29	12,898,400	11,521,800	+ 1,376,600	Ord. Stk.	22½	11	13	Nil	
India.														
Assam Bengal ..	1,329	23.6.34	26,460	+ 2,642	12	330,450	260,845	+ 69,605	Ord. Stk.	79	70	79	31½	
Baru Light ..	202	30.6.34	2,332	+ 2,715	13	40,387	41,317	— 930	Ord. Sh.	101½	70	100½	6	
Bengal & North Western ..	2,112	30.6.34	51,155	+ 4,246	13	714,809	696,614	+ 18,195	Ord. Stk.	292	240	273½	5½	
Bengal Doars & Extension	161	30.6.34	2,944	+ 305	13	31,432	32,607	— 1,175	"	127	119	125	5½	
Bengal-Nagpur ..	3,269	23.6.34	113,025	+ 2,097	12	1,455,675	1,294,597	+ 161,078	"	97½	83½	101½	31½	
Bombay, Baroda & Cl. India	3,089	14.7.34	131,100	+ 10,875	15	2,467,650	2,366,775	+ 100,875	"	112	107	109½	5½	
Madras & South'n Mahratta	3,230	23.6.34	112,125	+ 13,385	12	1,449,000	1,469,080	— 20,080	"	127	114½	125½	7½	
Rohilkund & Kumaon ..	546	30.6.34	8,210	+ 906	13	138,983	138,236	+ 747	"	260	225	249	6	
South India ..	2,526	23.6.34	85,463	+ 2,742	12	1,055,245	965,139	+ 40,106	"	119½	112	115½	6½	
Various.														
Beira-Umtali ..	204	May, 1934	58,872	+ 10,741	34	399,848	322,728	+ 77,120	—	—	—	—	—	
Bilbao River & Cantabrian	15	June, 1934	1,358	+ 361	26	10,459	8,063	+ 2,396	—	—	—	—	—	
Egyptian Delta ..	621	10.7.34	5,839	+ 642	15	52,942	51,128	+ 1,814	Prf. Sh.	151½	13½	178	5½	
Great Southern of Spain ..	104	14.7.34	1,221	+ 69	28	58,847	56,344	+ 2,503	Inc. Deb.	4	3	3½	Nil	
Kenya & Uganda ..	1,625	Mar., 1934	240,520	+ 21,064	12	638,137	606,192	+ 31,945	B. Deb.	53	33½	41½	8½	
Manila ..	—	—	—	—	—	—	—	—	1 Mg. Db.	91½	42	94	5½	
Mashonaland ..	913	May, 1934	106,858	+ 32,902	34	731,020	502,675	+ 228,345	Inc. Deb.	89	70	97½	4½	
Midland of W. Australia ..	277	May, 1934	12,136	+ 1,095	48	146,177	144,075	+ 2,102	4 p.c. Db.	98½	80½	101½	31½	
Nigerian ..	1,903	26.5.34	25,439	+ 3,054	8	216,201	190,606	+ 25,595	—	—	—	—	—	
Rhodesia ..	1,538	May, 1934	171,670	+ 38,452	34	1,236,395	915,804	+ 320,591	—	—	—	—	—	
South African ..	13,180	30.6.34	511,911	+ 26,279	13	6,266,176	5,477,055	+ 789,121	—	—	—	—	—	
Victorian ..	6,172	Apr., 1934	693,410	+ 69,054	43	7,335,168	7,788,758	— 453,590	—	—	—	—	—	
Zafra & Huelva ..	112	May, 1934	11,081	+ 415	21	55,722	52,126	+ 3,596	—	—	—	—	—	

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1½.

† Receipts are calculated at 1s. 6d. to the rupee.

‡ ex dividend.

Salvador receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rate of exchange and not on the par value.

